Effectiveness of Spiritist "passe" (Spiritual healing) for anxiety levels, depression, pain, muscle tension, well-being, and physiological parameters in cardiovascular inpatients: A randomized controlled trial[☆],[☆☆]

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ABSTRACT

Background: Biofield therapies, such as laying on of hands, are used in association with Conventional Medicine as Spiritist "passe", among others. The aim of this study was to evaluate anxiety, depression, pain, muscle tension and well-being, as well as physiological parameters in cardiovascular inpatients submitted to the Spiritist "passe", sham, and no intervention.
Methods: In the total, 41 cardiovascular inpatients submitted to the Spiritist "passe", sham, and no intervention during a 10-min period on 3 consecutive days. They were evaluated through anxiety and depression level, pain, the perceptions of muscle tension and well-being and physiological parameters, before and after interventions.
Results: A significant reduction (p = 0.001) in anxiety scores and muscle tension (p = 0.011), improvement of well-being (p = 0.003) and a significant increase in peripheral oxyhemoglobin saturation scores (p = 0.028) were observed in Spiritist "passe" patients, and a significant reduction (p = 0.028) of muscle tension and improvement of well-being (p = 0.045) in sham patients. However, muscle tension reduction (p = 0.003) and improvement of well-being (p = 0.003) were more accentuated in the Spiritist "passe" compared to sham and no intervention.
Conclusions: Results suggest that the Spiritist "passe" appeared to be effective, reducing anxiety level and the perception of muscle tension, consequently improving peripheral oxyhemoglobin saturation and the sensation of well-being compared to sham and no intervention in cardiovascular inpatients.

1. Introduction

The presence of psychiatric disorders such as depression and anxiety not only contributes to functional deficits in patients with coronary artery disease,[1] but also represents an additional important risk factor. In addition, depression and anxiety have proved to be predictive factors of low adherence to pharmacological treatment.[2] Patients with rheumatoid arthritis, arterial hypertension, lower back pain and heart diseases frequently report depressive symptoms as a comorbidity.[3–5]

Multicenter investigations denoted ENRICHD (Enhancing Recovery in Coronary Heart Disease) have reported the presence of depressive disorders in 30–50% of patients with acute coronary syndrome (ACS).[6] Among patients with coronary artery disease, the prevalence of anxiety disorders is approximately 24%.[7]

Complementary and alternative medicine (CAM), despite a distinct philosophical conception, are used in association with conventional medicine, and have been increasing in significance worldwide since the late 1970s.[8,9] Approximately 40% of the United States population has used some type of complementary therapy.[10]

In Brazil, one of the most used CAM is energy therapy also known Spiritist "passe", which has been used in several clinical conditions, including depressed patients.[11] The Spiritist "passe" results in an exchange of fluids and energies derived from the Spiritist healer, from good Spirits or from a combination of both.[23] However the studies that evaluate the effects of this energy therapy on the physical and mental health is still scarce in the scientific literature.

The objective of the present study was to assess the levels of anxiety, depression, pain, perceptions of muscle tension (TM) and well-being (BE) and physiological parameters (PP) in cardiovascular inpatients submitted to the Spiritist "passe" group (SP), sham group (HG) and control group (CG).

2. Methods

2.1. Study design and participants

This was a randomized controlled trial, conducted at the University Hospital, Federal University of Triângulo Mineiro (UFTM), on cardiovascular inpatients aged 18 years or older. Patients undergoing psychiatric care for anxiety or depression, neurological deficits, and those with less than 2 days and more than 60 days of hospitalization were excluded. All patients received psicological treatment.

2.2. Experimental procedures

For group assignment, patients were numbered consecutively using Microsoft Excel, which generated a sequence of randomized numbers.

The 41 patients were included to CG, SP and HG. During 10-min sessions held on 3 consecutive days, the participants of all three groups lay in dorsal decubitus. HG and SP subjects were instructed to direct their thoughts at Jesus with wishes of healing during the intervention, which was witnessed by a research assistant. CG patients lay for 10 min receiving no intervention.

In the SP and HG, the healers and volunteers moved their hands in a longitudinal direction, starting at the top of the patient's head and slowly sliding their hands along the body of the patient[12] for 5-min. Then, they laid their hands over the patient with their left hand over their head and their right hand over their chest, at a distance of approximately 10–15 cm[13] for 5-min.

The Spiritist healers were allowed to prepare by praying prior to the session and they was having at least 2 years of experience. In the HG, volunteers of the hospital that not to be a practitioner of the Spiritist religion were recruited and trained as sham healers transmitting sincere wishes of improvement to the patients by thought (nonspiritual therapy). All being older than 18 years.

Data collection was carried out in the period from october 2014 to march 2015, totalizing of 66 cardiovascular inpatients.

The study was blind, meaning that the professionals who participated in the application of the scales or perfomed statistical analysis, as well as patients of the SP and HG groups were not aware of which treatments the patients had received.

2.3. Measures

The Hospital Anxiety and Depression (HAD) scale were carried out at baseline (D1) and after the interventions on day 3 of treatment (D3). In addition, the evaluations of the pain VAS, of TM and BE, and of PP occurred out at baseline on the day 1 (D1), on day 2 (D2) and on day 3 (D3), before and immediately after the interventions.

Table 1
Clinical diagnosis of the patients (n = 41) in the groups studied.

Clinical diagnosis	Control n (%)*	SP	Sham
ACS	4 (30.7)	9 (64.3)	5 (35.7)
HD	3 (23.1)	1 (7.1)	6 (42.9)
DC	3 (23.1)	1 (7.1)	1 (7.1)
IE	2 (15.4)	2 (14.3)	0 (0.0)
Others	1 (7.7)	1 (7.1)	2 (14.3)

SP, Spiritist "passe"; ACS, acute coronary syndrome; HD, hypertensive disease; DC, dilated cardiomyopathy; IE, infectious endocarditis.
* There were no diferences between groups in scores for the clinical diagnosis (p = 0,258).

2.4. Assessment of anxiety and depression

The HAD scale was validated Portuguese by Botega et al.[14] The HAD comprises 14 items subdivided into two scales, measuring anxiety and depression. In the present study, the total score was used for each subscale.

2.5. Assessment of pain intensity, TM and BE

In the present study, the pain VAS[15] was presented as a 10-cm straight horizontal line, numbered, with the words *no pain* at the left end and *worst possible pain* at the right end.

The visual analog scales of TM and BE, with 0 representing the absence of symptoms and 10 the maximum level of symptoms,[16] has been used in diverse adult populations.[16,17]

2.6. Assessment of PP

Physiological parameters such as heart rate (HR) and peripheral oxyhemoglobin saturation (SpO$_2$) were assessed with a portable Rossmax SB220 Fingertip Pulse Oximeter (Rossmax InnoTec Corporation, Taipei, Taiwan) attached to the index finger of the left upper limb.

2.7. Statistical analysis

Data were analyzed statistically using descriptive statistics. Categorical variables were analyzed using the Chi-square test or Fisher's exact. Repeated measure data were analyzed by the Wilcoxon test and analysis of variance (ANOVA). Differences were considered to be statistically significant when p < 0.05.

3. Results

3.1. Characteristics of the participants

The study population included those with diseases of the cardiovascular system, as the admission's primary or secondary diagnosis (Table 1).

Thus, the sample consisted of 41 patients (Fig. 1), 23 (56%) of them male cardiovascular inpatients. Age ranged from 25 to 92 years (mean ± SD: 58 ± 16.8). Eleven (26.2%) patients were smokers. The sociodemographic, economic and religiouness characteristics of the cardiovascular inpatients are listed and compared in Table 2.

Participant characteristics at baseline were similar in both groups. Comparison of the results obtained for each group revealed a significant reduction in anxiety levels and in the TM in the group submitted to SP, as well as an increased SpO$_2$, and an improved sensation of well-being. HG subjects showed a reduction in the TM and improved BE (Table 3).

Fig. 1. Study flow diagram.
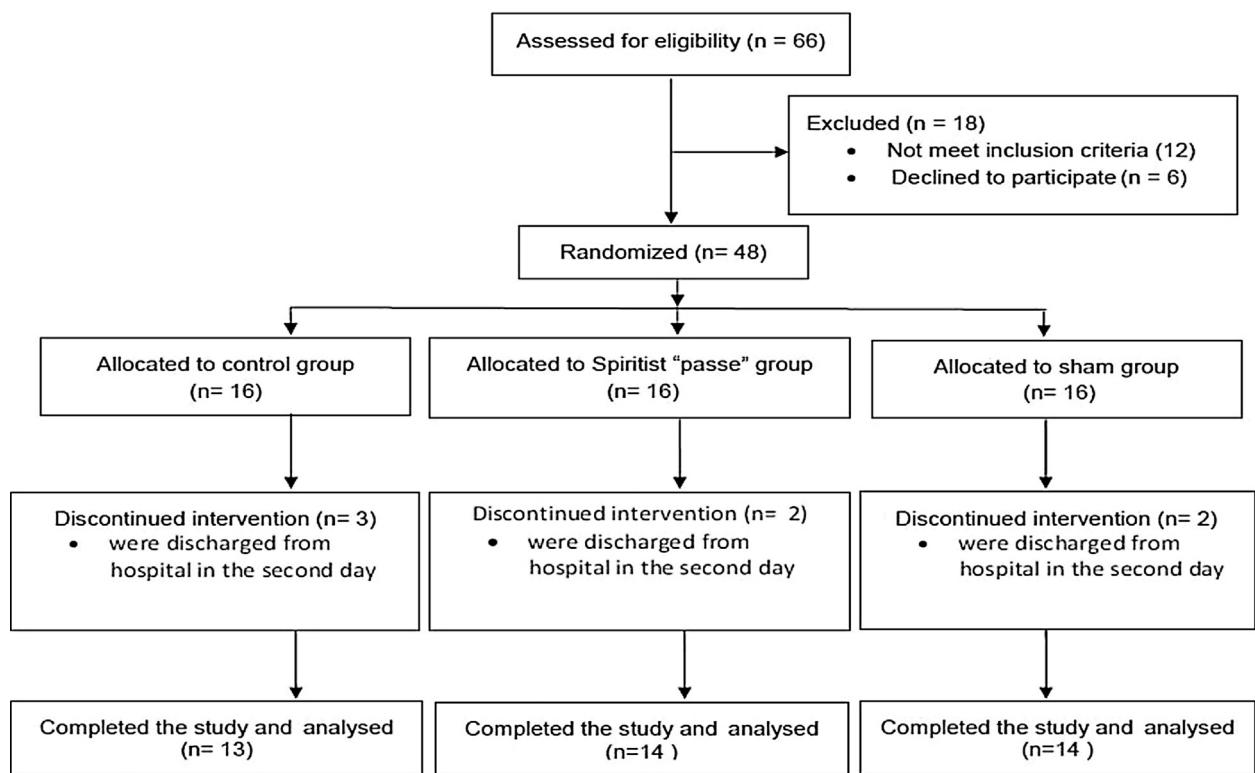
Table 2
Sociodemographic, economic and religiousness characteristics of the patients (n = 41) in the groups studied.

		Control (n = 13)	SP (n = 14)	Sham (n = 14)	P
Gender[a]	Male	8 (61.5)	6 (42.9)	9 (64.3)	0.464
	Female	5 (38.5)	8 (57.1)	5 (35.7)	
Age (years)[b]		58 ± 15.7	60 ± 15.9	57 ± 19.7	0.464
Race/color[a]	White	8 (61.5)	6 (42.9)	7 (50.0)	0.621
	Not-White	5 (38.5)	8 (57.1)	7 (50.0)	
	Single	3 (23.1)	1 (7.1)	3 (21.4)	0.343
	Married/In union	7 (53.8)	10 (71.4)	7 (50.0)	
Marital Status[a]	Separated/Divorced	2 (15.4)	2 (14.3)	0 (0.0)	
	Widow/Widower	1 (7.7)	1 (7.1)	4 (28.6)	
Education[a]	<8years	10 (76.9)	9 (64.3)	7 (50.0)	0.529
	>8years	3 (23.1)	5 (35.7)	7 (50.0)	
Individual Wage[a,c]	No wage[c]	2 (15.4)	4 (28.6)	2 (14.3)	0.616
	Up to 1 minimum	6 (46.2)	7 (50.0)	7 (50.0)	
	wage >1	5 (38.5)	3 (21.4)	5 (35.7)	
Religious affiliation[a]	Catholic	8 (61.5)	7 (50.0)	6 (42.8)	0.848
	Evangelical	0 (0.0)	1 (7.1)	2 (14.3)	
	Spiritist	4 ((30.8)	4 (28.6)	4 (28.6)	
	No religion	1 (7.7)	2 (14.3)	2 (14.3)	
Religiosiousness[d] DUREL	RO	3[1–6]	4[1–6]	3 [1–6]	0.616
	RNO	5[1–6]	5.5[1–6]	5[1–6]	
	RI	15[3–15]	12[3–15]	10.5[3–15]	

SP, Spiritist 'passe'; RO, organizational religiosity; RNO, non-organizational religiosity; RI, intrinsic religiosity.

[a] n (%).
[b] mean (SD).
[c] The minimum wage at the time of data collection was R$ 788.00.
[d] Median [minimum and maximum].

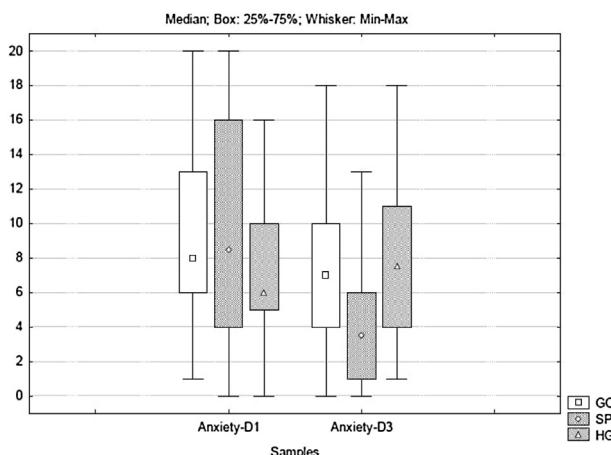### 3.2. Assessment of anxiety and depression

The anxiety total scale scores were significantly reduced in the patients submitted to SP between the baseline and D3 (p = 0.001) and (p = 0.003) compared to HG and CG (Fig. 2, Table 3).

Depression total scores were reduced on the periods studied in the SP group (p = 0.108), although the difference was not sta-

tistically significant. When compared to SP, HG and CG, was not statistically different (p = 0.858).

3.3. Assessment of the TM and BE

The ANOVA-Friedman test revealed a significant reduction in the TM in the patients submitted to SP when comparing the D1

Median; Box: 25%-75%; Whisker: Min-Max

Fig. 2. Anxiety-D1, anxiety scores baseline; Anxiety-D3, anxiety scores on D3.

Median; Box: 25%-75%; Whisker: Min-Max

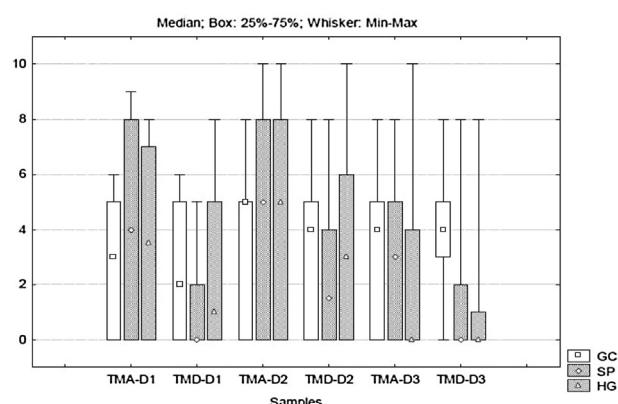**Fig. 3.** TMA, muscle tension before the interventions; TMD, muscle tension after the interventions.

(p = 0.011 on the D1 after compared to baseline), between the D1 and D2 (p = 0.010 on the D2 before compared to the D1 after), D2 (p = 0.007 at the before and after), between D2 and D3 (p = 0.024 on the D3 after compared to the D2 before), and, finally, the D3 (p = 0.017 at the before and after). There was a significant reduction in the TM in the patients submitted to HG between the D1 and D2 (p = 0.028 on the D2 before compared to the D1 after), and, between D2 and D3 (p = 0.032 on the D3 before compared to the D2 before and p = 0,010 on the D3 after compared to D2 before).

The greater reduction scores in the TM was seen in the SP group compared to HG and CG (p = 0.003 on the D3 in the difference between before and after interventions). The results might be seen in Fig. 3, Table 3.

The values of well-being reported by the patients were significantly increased among those submitted to SP when comparing the D1 (p = 0.003 on the D1 after compared to baseline), between the D1 and D2 (p = 0.016 on the D2 after compared to baseline and p = 0.005 on the D2 before compared to on the D1 after), the D2 (p = 0.003 at the before and after), between D1 and D3 (p = 0.003

Table 3
Clinical outcomes in patients (n = 41) in the groups studied.

		Control Mean (SD)	SP Mean (SD)	Sham Mean (SD)
Anxiety	Baseline	8.62 ± 5.57	9.64 ± 6.69[a]	7.92 ± 4.76
	After D3	8.00 ± 5.71[b]	3.71 ± 3.49[a,b]	7.92 ± 4.76[b]
Depression	Baseline	7.92 ± 7.02	6.00 ± 5.71	6.69 ± 5.34
	After D3	7.69 ± 6.11	4.21 ± 3.98	6.31 ± 5.34
Muscle tension	Baseline	2.85 ± 2.48	3.71 ± 3.67[c]	3.71 ± 3.45
	After D1	2.15 ± 2.38	1.07 ± 1.49[c,d]	2.29 ± 2.70[h]
	Before D2	3.46 ± 2.63	4.36 ± 3.6[d,e,f]	4.86 ± 3.68[h,i,j]
	After D2	3.08 ± 2.60	2.21 ± 2.69[e]	3.64 ± 3.93
	Before D3	3.31 ± 2.59	3.00 ± 3.21[g]	1.71 ± 3.10[i]
	After D3	3.69 ± 2.39[k]	1.43 ± 2.68[f,g,k]	1.36 ± 2.62[j,k]
Well-being	Baseline	7.54 ± 2.03	6.93 ± 2.70[l,m]	7.21 ± 3.02[t]
	After D1	7.85 ± 1.91[x]	9.36 ± 0.95[l,n,p,x]	7.50 ± 2.53[u,x]
	Before D2	7.46 ± 2.15	6.43 ± 2.68[n,o,q]	6.64 ± 2.98[u,v,w]
	After D2	7.92 ± 2.02[y]	9.00 ± 1.04[m,o,r,y]	7.93 ± 3.0[v,y]
	Before D3	7.15 ± 2.03	6.86 ± 2.63[p,r,s]	8.29 ± 2.02
	After D3	7.38 ± 2.06[z]	8.93 ± 1.86[p,q,s,z]	8.93 ± 1.33[t,u,w,z]
Heart rate	Baseline	75.08 ± 14.45	73.57 ± 9.15	76.31 ± 11.43
	After D1	74.38 ± 15.08	70.50 ± 13.20	75.69 ± 11.72
	Before D2	75.69 ± 14.13	72.64 ± 14.60	77.54 ± 12.39
	After D2	76.15 ± 12.72	70.00 ± 11.50	78.54 ± 11.6
	Before D3	74.46 ± 11.52	72.14 ± 13.83	77.23 ± 11.37
	After D3	72.62 ± 9.90	71.79 ± 11.83	76.08 ± 12.79
SpO$_2$	Baseline	96.46 ± 2.50	94.00 ± 3.80[aa]	95.85 ± 3.21
	After D1	95.54 ± 2.29	94.07 ± 3.14[ab]	96.15 ± 2.07
	Before D2	95.15 ± 3.02	95.93 ± 2.36	96.31 ± 2.78
	After D2	95.38 ± 3.04	95.86 ± 2.31	95.15 ± 2.79
	Before D3	95.62 ± 2.10	96.29 ± 1.72[aa,ab]	96.15 ± 2.47
	After D3	95.62 ± 2.33	95.71 ± 2.05	95.23 ± 2.16
Pain	Baseline	1.00 ± 2,40	2.43 ± 3.36	2.00 ± 3.02
	After D1	0.92 ± 2,52	1.07 ± 1.81	2.15 ± 3.21
	Before D2	1.46 ± 2,86	2.43 ± 3.36	1.46 ± 3.04
	After D2	1.31 ± 2,72	2.21 ± 3.44	0.69 ± 1.97
	Before D3	1.00 ± 2.65	1.43 ± 2.73	1.38 ± 2.63
	After D3	1.31 ± 2.78	0.93 ± 2.20	0.62 ± 2.21

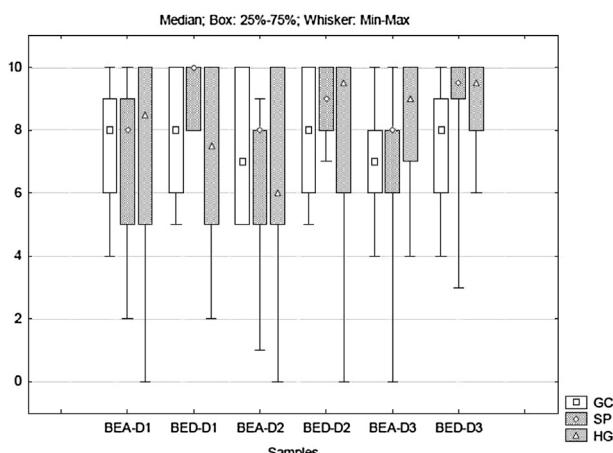SP, Spiritist "passe"; SpO2, peripheral oxyhemoglobin saturation.
[a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z,aa,ab] p < 0.05.

Fig. 4. BEA, well-being before the interventions; BED, well-being after the interventions.

on the D3 before compared to on the D1 after), between D2 and D3 (p = 0.020 on the D3 after compared to D2 before and p = 0.006 on the D3 before compared to the D2 after), and, finally, the D3 (p = 0.012 at the before and after). Until, significantly increased of BE in the patients of HG were observed between the D1 and D3 (p = 0.045 on the D3 after compared to baseline and p = 0.032 on the D3 after compared to on the D1 after), the D2 (p = 0.017 at the before and after) and, between D2 and D3 (p = 0.016 on the D3 after compared to D2 before).

The greater increase scores in the BE was observed in the SP group compared to the HG (p = 0.003 on the day 1, p = 0.016 on the day 2 and p = 0.011 on the day 3 in the diference between before and after interventions), showing that these patients felt a better well-being (Fig. 4, Table 3).

3.4. Assessment of physiological parameters

The SP group showed a significant increase in SpO_2 scores during the periods studied, between the D1 and D3 (p = 0.028 on the D3 before compared to baseline and p = 0.013 on the D3 before compared to the D1 after), demonstrating improved SpO_2 throughout the study (Table 3).

The SP group showed lower HR values after the interventions, although the difference was not statistically significant (p = 0.302).

The pain scores did not differ significantly between the periods analyzed in CG (p = 0.169), SP (p = 0.149), or HG (p = 0.516).

4. Discussion

Cardiovascular inpatients who received SP reported a significantly greater reduction in anxiety scores, TM and increase in the SpO_2, and BE after receiving 3 days of therapy.

The finding of significantly greater anxiety relief reported by SP subjects is consistent with results observed by studies.[18–20] The persistence of anxiety symptoms may lead to functional impairment, reducing the quality of life and negatively affecting the cardiovascular prognosis.[21–24]

The reduction in depression scores was detected in individuals receiving SP in agreement with the findings obtained in recents studies evaluating SP.[25,26] It has been reported that depression is a risk factor for poor outcomes among patients who might not be adhering to medical advice.[27] The Spiritist "passe" is considered an immediate transmission of energy from the Spiritist healer to the receptor subject.[11] Homeostasis and neuroendocrine circuits involved in the depression[28] might be improved by the reception of magnetic energy provided by this approach.[18,29]

In this study, there was a reduction in the TM and increase in the BE in the SP and HG. However, there were effects of greater magnitude in the SP group. Our findings agree with those in the literature, which describes that the administration of Spiritist "passe" may bring direct and positive impacts over the human being behavior,[18] denoting the influence of the spiritual energy on physical health.

The present results showed a significant increase in SpO_2 in the SP throughout the study. A recent systematic review suggest that biofield interventions can generate salutogenic effects in cardiovascular function in coronary patients.[30]

A reduction in HR was observed here after SP, although the difference was non significant. Carneiro et al. observed a reduction in respiratory rate and HR in neonates submitted to SP.[31]

The pain scores did not differ significantly after the interventions, even in patients with ACS (p = 0,615), which could be explained by the small number of patients of this subgroup or because they were receiving specific clinical therapy. A systematic review by Jain and Mills[32] suggested that biofield therapies demonstrated strong evidence for reducing self-reported pain intensity in a variety of patients.

Moreover, this study is the first in assessing the Spiritist "passe" in cardiovascular inpatients. It should be pointed out the fact that no patient reported adverse effects. The Spiritist "passe", as a type of aid invariably applicable with no contraindication, is always valuable for the treatment of any class of patients, from small children to elderly individuals.[33]

The study had limitations such as the size of the sample, it was addressed only to cardiovascular inpatients and our results may not be extended to other different population. Other limitations were the lack of follow up after the interventions and the fact that despite the studied sample has individuals with different religious and belief system, all of them are Christian due to the characteristics of Brazilian population religiousness.

In addition, further studies are needed with larger samples, and exploring the nature and the physiological basis of healing with biofield therapy. It would also be of interest the long term follow up studies in order to assess the safety of the therapy in question.

5. Conclusion

The present results suggest that SP was effective in reducing anxiety, muscle tension, and consequently improving SpO_2 and well-being in cardiovascular inpatients.

Authors' contributions

Carneiro EM has made substantial contributions to conception and design, acquisition of data, and interpretation of data; has been involved in drafting the manuscript; and has given final approval of the version to be published. Barbosa LP, Terra Junior JA, Martins CJP and Resende LAPR involved in revising the manuscript critically for important intellectual content; and has given final approval of the version to be published. Borges MF has been involved in drafting the manuscript; has been involved in revising the manuscript critically for important intellectual content; and has given final approval of the version to be published. Modesto D has made substantial contributions to acquisition of data and has given final approval of the version to be published. Marson JM has made contributed to satatistical analysis, has been involved in revising the manuscript critically for important intellectual content; and has given final approval of the version to be published. All authors have read and approved the final manuscript.

Conflict of interest

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