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ORIGINAL ARTICLE

Assessment of the Effects of Yoga on Self-Perceived Health of Elderly

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ABSTRACT

Background. The effects of yoga on the self-perceived health of the elderly have not yet been considered in Vinh City, Vietnam. **Objectives.** This study aimed to evaluate the effects of yoga practice on the self-perceived health of the elderly. **Methods.** Ninety subjects aged 60 to 70 (65±5.2) were recruited to take part in this study. Subjects were divided into two groups: The yoga group (YG, forty-five subjects) and the Control group (CG, forty-five subjects). Prior to intervention, participants were asked to complete an informed consent. The inclusion criterion for both samples was that subjects were able to completely fill SF-36. Exclusion criteria were serious diseases such as symptomatic coronary insufficiency, angina pectoris, obvious cognitive deficits, uncontrolled high blood pressure, and functionally dependent. Participants in the YG attended a 60-minute yoga practice session, twice a week for 3 months. Participants of CG were informed not to do any new exercise program, but still maintain daily activities. **Results.** After three months of yoga practice, participants in YG showed significantly better results in all aspects of health including physical functioning (F=61.498, P=0.000), role-physical (F=56.551, P=0.000), bodily pain (F=28.051, P=0.000), general health (F=61.478, P=0.000), vitality (F=62.147, P=0.000), social functioning (F=44.486, P=0.000), role-emotional (F=44060, P=0.000), mental health (F=34.524, P=0.000) in comparison to CG. **Conclusion.** Yoga practice can improve the physical and mental health of the elderly.

KEYWORDS: ***Mental Health, Physical Health, SF-36, Self-Perception, Yoga.***

INTRODUCTION

Physical activities are very important for all people. Exercise programs positively affect the mental health of the elderly, both those who are generally healthy and those who have experienced various symptoms (1). The evidence shows that regular physical activity is safe for healthy and for frail older people and the risks of developing major cardiovascular and metabolic diseases, obesity, falls, cognitive impairments, osteoporosis, and muscular weakness are decreased by regularly completing activities ranging from low-intensity walking through to more vigorous sports and resistance exercises (2). Physical activity is associated with increased chances of successful aging. Preventing loss of physical and cognitive function and improving mental health and social engagement are the benefits of physical activity that improve chances of aging successfully and healthily (3). Physical activity improves health in the physical, mental, and social spheres of older adults, improving their quality of life and promoting healthy aging. Including physical activity as part of the activities of daily life of the elderly promotes balance, prevents falls, and improves physical strength and flexibility.

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As one of the physical activities, yoga is a system of philosophy, that brings physical, and mental health to individuals (4). Previous studies proved that yoga practicing can elicit improvement in health-related aspects of physical fitness (5), bring health advantages to the aging population (6), improve physical fitness, and encourage self-reliance (7). Furthermore, yoga could help to improve the levels of self-esteem and self-image of the elderly (8), health-related quality of life and mental in older people (9-11), and sleep quality among elderly people (12-14). As a physical aspect, yoga can improve static and dynamic balance and lower extremities strength (15).

There are many people who live in community-dwelling in Vinh City, Vietnam engage in yoga. However, there have not been comprehensive systematic studies dealing with the effects of yoga on the physical and mental health of the elderly by their own perceptions. Thus, this study was carried out to evaluate the effects of yoga practice on physical and mental components by using SF-36 investigation for the self-perceived health of the elderly. The current study also aimed to assess and provide more evidence about the effects of yoga practice on the health of an older population.

MATERIALS AND METHODS

Participant and protocol. This study was a controlled trial. Ninety subjects aged 60 to 70 (65±5.2) were recruited to take part in this study. Participants were recruited via flyers, interviews, emails, and telephone. Participants were asked to complete an informed consent. The inclusion criterion for both samples was that subjects were able to fully understand to completely fill SF-36. Exclusion criteria were serious diseases such as symptomatic coronary insufficiency, angina pectoris, obvious cognitive deficits, uncontrolled (higher than 160/100) high blood pressure, functionally dependent, and regular use of assistive devices. Subjects were divided into two groups: The yoga group (YG) included forty-five subjects and the Control group (CG) included forty-five subjects. YG was conducted by yoga experts to follow a yoga program for three months. Participants in the YG attended a 60-minute yoga practice session, twice a week for 3 months. The session consisted of a 15-minute warm-up and a 15-minute cool-down period. CG was informed not to do any new exercise program, but still maintain daily activities.

Outcome measurements. The Medical Outcomes Study SF-36 (Short-Form 36) was developed to assess self-perceived health in a variety of settings. Using SF-36 to screen the performance levels in selected physical abilities involves higher levels of subjective feelings of health status, and it also was used for assessment of subjectively rated health. The SF-36 is a widely established instrument in studying quality of life and has been shown to be both valid and acceptable in a normal healthy population and reliable across diverse patient groups. SF-36 explores eight indicators related to the quality of life (16), while the health-related quality of life indicator can be identified. The 36-item short form was constructed to survey health status in the Medical Outcomes Study (17) and consists of 36 items that measure the following eight indicators:

- Physical functioning: Limitation in physical activities because of health problems.
- Role-physical: Limitation in usual role activities because of physical health.
- Bodily pain.
- General health: General health perceptions.
- Vitality: Energy and fatigue.
- Social functioning: Limitation in social activities because of physical or emotional problems.
- Role-emotional: Limitations in usual role activities because of emotional problems.
- Mental health: Psychological distress and well-being.

For means of interpretation, a total score for physical and mental domains of health is calculated. A questionnaire was used to assess and self-report health status. The questionnaire was administered in Vietnamese by trained Vietnamese interviewers. Translation of the United States version of the SF-36 was performed by two independent translators using forward and backward translation methods (18).

Statistical analysis. All statistical analyses were conducted using the statistical package for social science (Statistical Package for Social Sciences). The statistical significance has been estimated at probability (p-value) equal or less than 0.05. Data are expressed as means±standard deviation. Analysis of variance (ANOVA) was used to determine the differences of variables.

RESULTS

Self-perceived health between YG and the CG at the baseline. There is no significant difference between the two groups of intervention for self-perceived health (Table 1). Statistical results of one-way ANOVA showed Physical function [F(1, 88) =1.144; p>0.05]; Role physical [F(1, 88) =1.272; p>0.05]; Body pain [F(1, 88) =1.316; p>0.05]; General health (subscale) [F(1, 88) =0.774; p>0.05]; Vitality [F(1, 88) =0.040; p>0.05]; Social functioning [F(1, 88) =0.371; p>0.05]; Role Emotional [F(1, 88) =1.302; p>0.05]; Mental health (subscale) [F(1, 88) =0.111; p>0.05]; Physical component summary [F(1, 88) =1.174; p>0.05]; Mental component summary [F(1, 88) =0.707; p>0.05] and Short form 36 [F(1, 88) =1.072; p>0.05], respectively.

Table 1. One-way ANOVA for self-perceived health between YG & CG at baseline

Dependent Variables	YG (n=45) Mean±SD	CG (n=45) Mean±SD	F	Sig.*
Physical function	56.11±34.02	48.56±32.97	1.144	0.288
Role physical	44.11±42.62	36.11±41.47	1.272	0.262
Bodily pain	59.78±21.57	54.84±20.63	1.316	0.254
General health (subscale)	44.22±17.81	41.82±18.83	0.774	0.381
Vitality	58.44±12.87	57.89±13.46	0.040	0.842
Social functioning	50.40±17.95	47.93±20.39	0.371	0.544
Role emotional	48.89±41.85	38.51±44.38	1.302	0.257
Mental health (subscale)	62.22±13.52	61.24 ±14.31	0.111	0.740
Physical component summary (scale)	52.98±23.42	47.62±23.46	1.174	0.282
Mental component summary (scale)	53.02±18.74	49.56±20.45	0.707	0.405
Short form 36 total (scale)	53.40±22.50	48.37± 23.450	1.072	0.303

*: determined by ANOVA

Self-perceived health between YG and CG at Midpoint. All dependent variables of one-way ANOVA show significant differences between the two groups of intervention in self-perceived health. Participants in the YG report better scores than the CG for all subscales of the test. It can be observed from Table 2, the results of subscales show statistical differences in Physical function [F(1, 82) =29.572, p<0.05]; Role physical [F(1, 82) =447.563, p<0.05]; Bodily pain [F(1, 82) =6.373, p<0.05]; General health [F(1, 82) =24.636, p<0.05]; Vitality [F(1, 82) =12.131, p<0.05]; Social functioning [F(1, 82) =8.158, p<0.05]; Role emotional [F(1, 82) =19.701, p<0.05]; Mental health (subscale) [F(1, 82) =34.253, p<0.05]; Physical component summary [F(1, 82) =65.846, p<0.05]; Mental component summary [F(1, 82) =20.153, p<0.05] and Short form 36 total [F(1, 82) =28.792, p<0.05], respectively.

Table 2. One-way ANOVA for self-perceived health between YG & CG at midpoint

Variables	YG (n=42)** Mean±SD	CG (n=42)** Mean±SD	F	Sig.*
Physical function (1, 82)	81.07±19.83	48.33±33.59	29.572	0.000
Role physical	86.31±23.55	36.31±40.64	47.563	0.000
Bodily pain	65.64±14.25	55.71±21.28	6.373	0.014
General health	59.67±11.81	43.69±17.18	24.636	0.000
Vitality	67.62±8.64	59.52±12.33	12.131	0.001
Social functioning	59.36±12.32	48.71±20.76	8.158	0.005
Role emotional	69.79±36.57	31.74±41.64	19.701	0.000
Mental health (subscale)	69.52±9.55	62.10±12.71	34.523	0.000
Physical component summary (scale)	80.54±6.82	47.09±24.00	65.846	0.000
Mental component summary (scale)	65.14±12.89	49.19±19.07	20.153	0.000
Short form 36 total (scale)	69.93±13.17	48.21±22.67	28.792	0.000

*: determined by ANOVA; **: Three subjects in YG and three in CG dropped out.

Self-perceived health between the YG and the CG at the endpoint. The one-way ANOVA shows significant differences between the two groups of intervention in self-perceived health. Participants in the YG keep reporting better scores than those in the CG. It can be observed from Table 3, the results of subscales show statistically for Physical function [F(1, 67) =61498, p<0.05]; Role physical [F(1, 67) =56.551, p<0.05]; Bodily pain [F(1, 67) =28.051, p<0.05]; General health (subscale) [F(1, 67) =61.478, p<0.05]; Vitality [F(1, 67) =62.147, p<0.05]; Social functioning [F(1, 67) =44.486, p<0.05]; Role emotional [F(1, 67) =44.060, p<0.05]; Mental health (subscale) [F(1, 67) =34.524, p<0.05]; Physical component summary (scale) [F(1, 67) =65.841, p<0.05]; Mental component summary (scale) [F(1, 67) =058.314, p<0.05] and Short form 36 total [F(1, 67) =60.817, p<0.05], respectively.

Table 3. One-way ANOVA for self-perceived health between YG & CG at the endpoint

Dependent variables	YG (n=37)** Mean±SD	CG (n=32)** Mean±(SD)	F	Sig.*
Physical function	93.51±9.19	45.94±35.59	61.498	0.000
Role physical	91.89±16.72	34.38±42.95	56.551	0.000
Bodily pain	74.76±7.10	54.69±21.67	28.051	0.000
General health (subscale)	70.19±7.24	43.31±19.39	61.478	0.000
Vitality	73.24±5.55	58.28±9.88	62.147	0.000
Social functioning	73.70±5.68	49.03±21.67	44.486	0.000
Role emotional	91.05±16.86	36.47±46.66	44.060	0.000
Mental health (subscale)	74.16±6.15	60.62±12.36	34.524	0.000
Physical component summary (scale)	80.54±6.82	47.09±24.00	65.841	0.000
Mental component summary (scale)	76.46±5.87	49.56±20.49	58.314	0.000
Short form 36 total (scale)	80.32±6.62	47.91±24.28	60.817	0.000

*: determined by ANOVA; **: Five subjects in YG and ten in CG dropped out

DISCUSSION

A current study shows that 3 months of regular yoga practice can improve the physical and mental health of older people by using SF-36. There was a significant improvement in all aspects of the health of older peoples' self-perception. Previous studies suggested that yoga can bring huge potential for mental health and save a large expenditure for treatment and prevention of mental health problems (19), and improvements in sleep quality (20), depression state of older adults (21), memory performance and psychological parameters (4). In addition, yoga practice reduced sleep disturbances in an older population (22), reduced stress (23, 24), and improved quality of life in overweight and obese persons (25, 26). Our finding is in consistent with the results of studies found in literature which observed improvements in health-related quality of life (23, 27-29), physical fitness and self-reliance (7), flexibility and cardiorespiratory endurance (5), physical and mental health, well-being (30). The results of this study are also in accordance with previous studies which may be helpful for depression, anxiety (31-33), and have the potential of playing a protective or preventive role in maintaining mental health (34). In the current study, scores of all domains (dependent variables) of health including physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health which were investigated by SF-36 of the Yoga group were much better than those of Control group. This means that limitations in physical activities because of health problems, limitations in usual role activities because of physical health, general health perceptions, energy and fatigue, limitations in social activities because of physical or emotional problems, limitations on usual role activities because of emotional problems, and psychological distress and well-being were significantly improved. These results were in agreement with the finding of Caroline Smith that within the 10-week intervention stress, anxiety, and quality of life scores improved over time, in reducing stress, anxiety and improving health status on seven domains of the SF-36, improving mental health. At the end of the 6-week follow-up period, there were no differences between groups in levels of stress, anxiety, and on five domains of the SF-36. Vitality, social function, and mental health scores on the SF-36 were higher in the relaxation group during the follow-up period (35).

CONCLUSION

The results of this study indicated that 3 months of yoga practice could significantly improve multiple aspects of the health of the elderly. More specifically, yoga training can improve physical and mental components by using SF-36 investigation for the self-perceived health of the elderly. The limitation of this study is a small sample size that cannot be representative of a large population and there is a biased effect of groups because YG followed the yoga program whereas CG only remained daily activities. More randomized controlled trials with large sample sizes are required to be conducted in various settings, to confirm the findings.

APPLICABLE REMARKS

- It may be suggested yoga training (60-minute yoga practice session, twice a week for 3 months) in low and moderate intensity should be implemented in the old population to enhance physical and mental health.
- Assists yoga instructors for better teaching and instructing in the community.

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AUTHORS' CONTRIBUTIONS

Study concept and design: Hung Manh Nguyen. Acquisition of data: Hung Manh Nguyen. Analysis and interpretation of data: Thuy Thi Nguyen. Drafting the manuscript: Hung Manh Nguyen. Critical revision of the manuscript for important intellectual content: Tho Thi Nhu Ngo. Statistical analysis: Thuy Thi Nguyen. Administrative, technical, and material support: Tho Thi Nhu Ngo. Study supervision: Hung Manh Nguyen.

CONFLICT OF INTEREST

The authors declared no conflict of interest regarding the publication of this article.

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