Effect of Progressive Muscle Relaxation versus Intake of Ginger Powder on Dysmenorrhoea amongst the Nursing Students in Pune

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Abstract

The present study was conducted to examine the comparative efficacy of progressive muscle relaxation and the oral intake of ginger on symptoms of dysmenorrhoea among nursing students of Pune, Maharashtra. The study students (n=75) were divided into three groups, two experimental and one control. Ginger powder 1 gm per dose was administered twice a day with warm water after meal to the second experimental group during the first three days of their menstruation. Main outcome measures were the severity of selected symptoms of dysmenorrhoea. The daily symptom calendar, a 5-point Likert Scale was used to assess the severity of selected symptoms of dysmenorrhoea. Main outcome measures were the severity of selected symptoms of dysmenorrhoea, which were analysed using MANOVA. It was concluded that in treating symptoms of dysmenorrhoea, ginger powder has efficacy superior to progressive muscle relaxation.

Most women experience some form of discomfort in their menstruation like headache, menstrual cramps or bloating. Over half the women in menstruating age group have pain for 1-2 days every month. The pain is usually mild but at times it can be severe enough to impair normal activity, pain of such magnitude is called dysmenorrhoea.

Materials & Methods

A non-probability purposive sampling technique was adopted to select 75 nursing students in Maharshi Karve Stree Shikshan Samastha's Smt Bakul Tambat Institute of Nursing Education, Pune. The participants were divided into three groups: experimental group 1, experimental group 2 and control group again by lottery method, 25 in each group.

Jacobson's progressive muscle relaxation exercise was administered once a day to the first experimental group during the first three days of their menstruation. Ginger powder 1 gm per dose was administered twice a day with warm water after meal to the second experimental group during the first three days of their menstruation. Main outcome measures were the severity of selected symptoms of dysmenorrhoea. The daily symptom calendar, a 5-point Likert Scale was used to assess the severity of selected symptoms of dysmenorrhoea. The data was analysed by using MANOVA.

The data gathering process was done in between the period from 19 July to 21 August 2010.

Objectives

The study attempted to examine the effectiveness of progressive muscle relaxation versus oral intake of ginger powder on the selected symptoms of dysmenorrhoea amongst nursing students in Pune.

Hypotheses

Progressive muscle relaxation and ginger powder has *no effect* ($H_0$1) or *significant effect* ($H_1$1) on selected symptoms of dysmenorrhoea amongst the nursing students suffering from dysmenorrhoea at selected educational institutes in Pune.

There will be *no significant difference* ($H_0$2) *significant difference* ($H_1$2) between the effects of progressive muscle relaxation and oral intake of ginger powder on selected symptoms of dysmenorrhoea amongst the nursing students suffering from dysmenorrhoea at selected educational institutes in Pune.

For this study the research approach adopted was a quasi-experimental comparative approach. Pre-test post-test control group design

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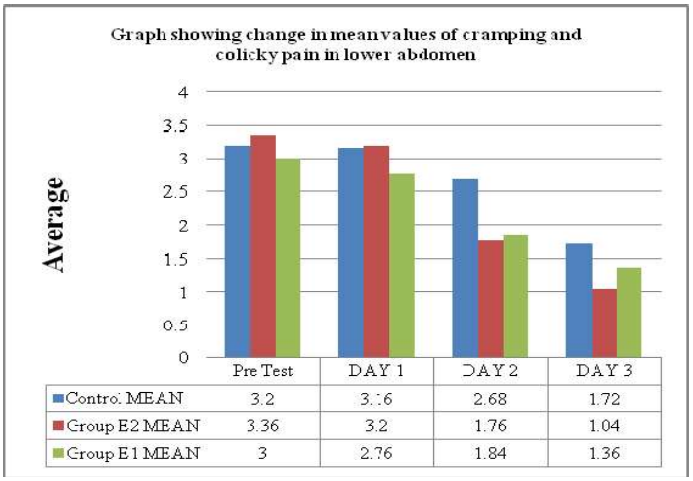
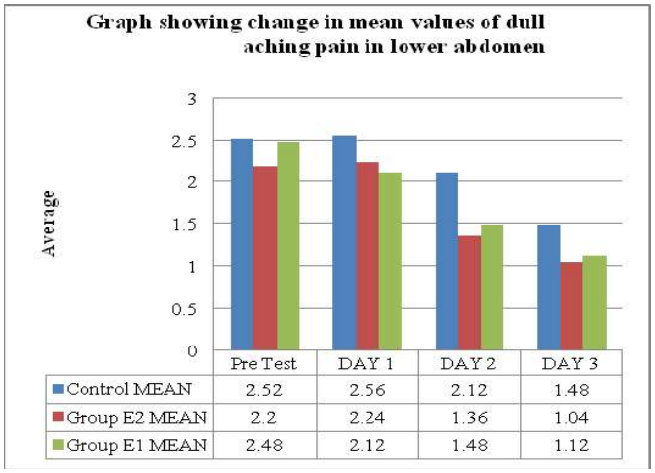
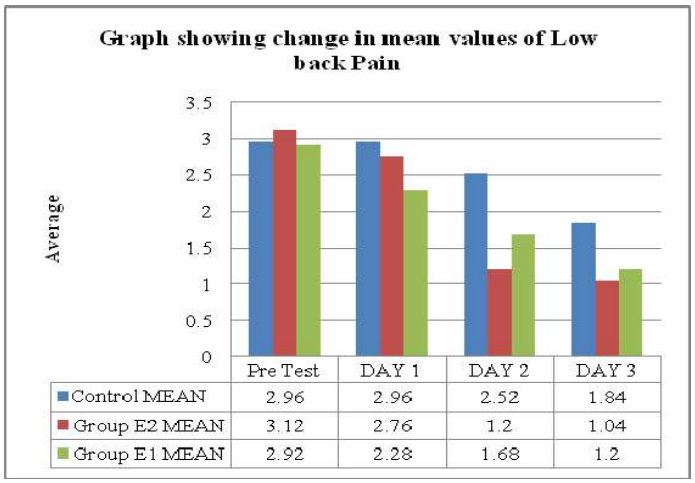
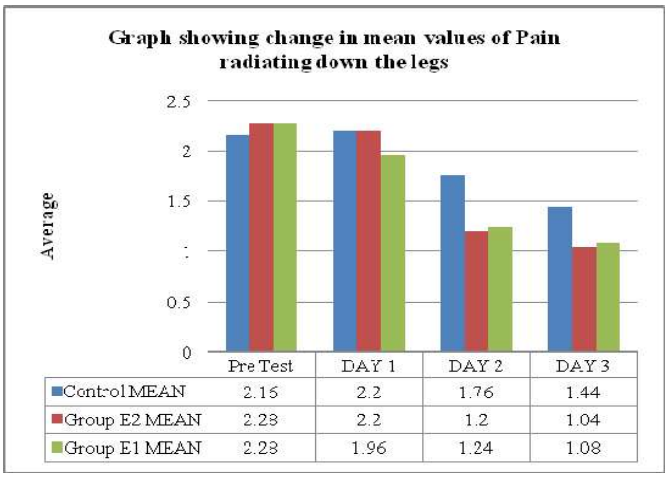
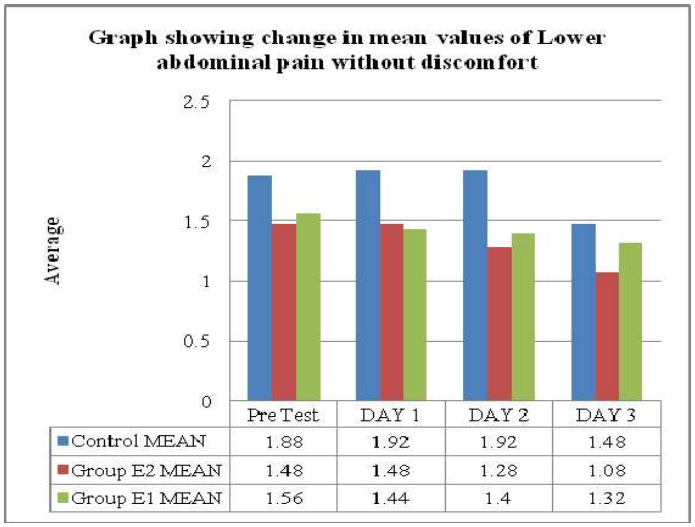
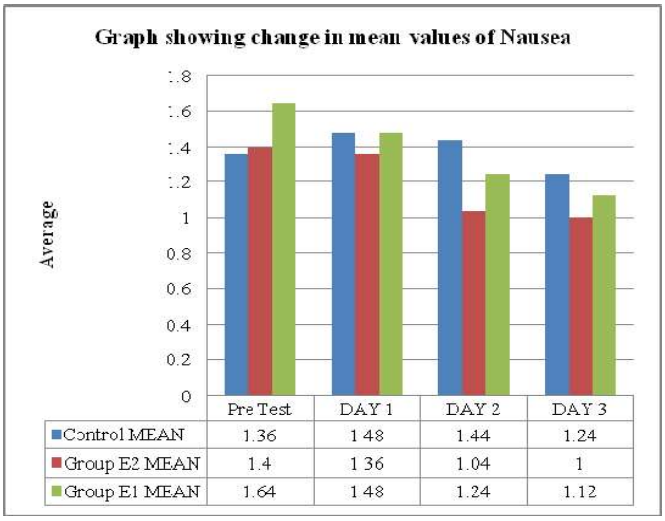












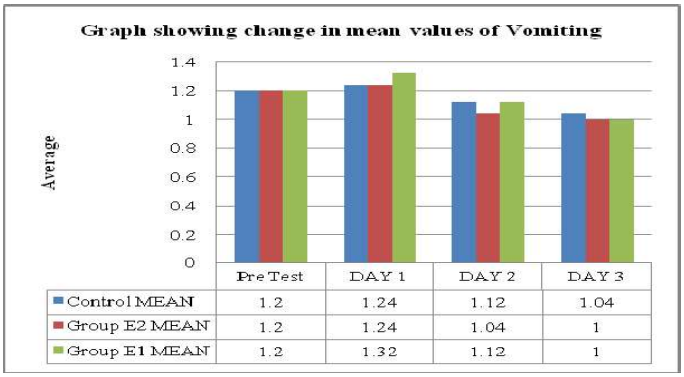
was selected.

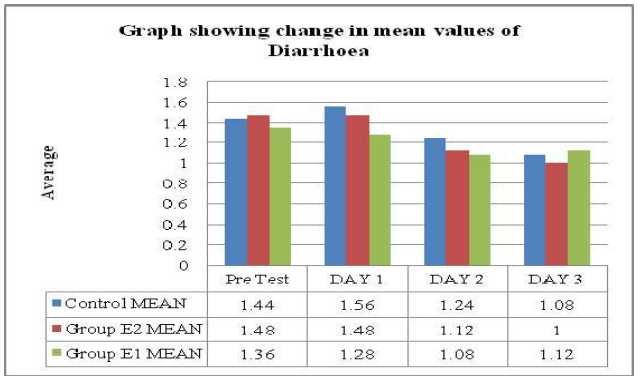
Variables

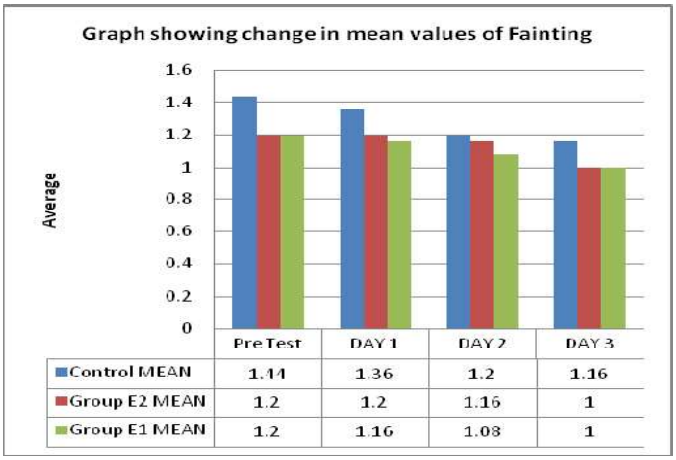
Jacobson's progressive muscle relaxation exercise and ginger powder are the independent variables. Dependent variables are selected symptoms of dysmenorrhoea of the samples. Only those students who fulfilled the sample criteria were selected for the study.

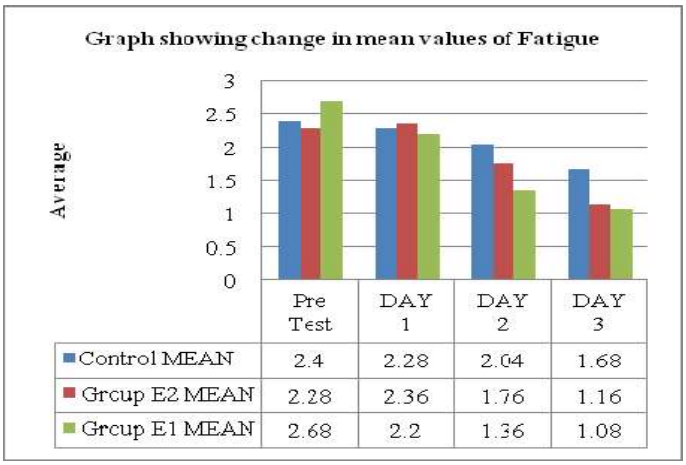
Criteria for sample selection

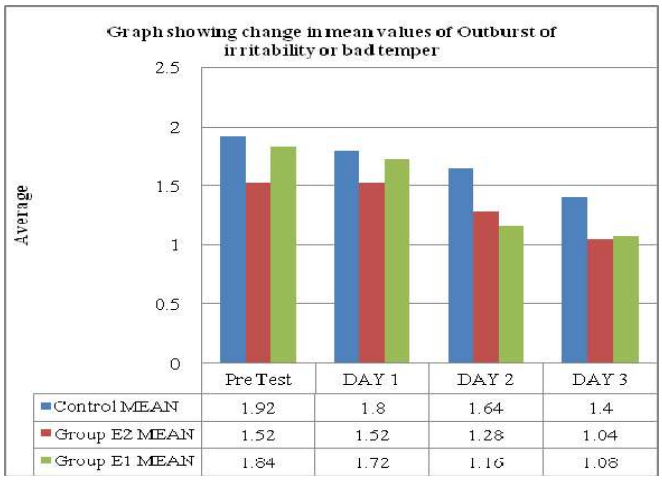
Inclusion criteria: Nursing students (i) who suffer from primary or secondary dysmenorrhoea in the majority (> 50%) of menstrual cycles; (ii) who suffer from dysmenorrhoea for at least one day of menses; (iii) who are of reproductive age; (iv) who give consent and are willing to participate for the study; and (v) who were available at the time of study (i.e. from 19 July to 21 August 2010) and have their date of menstruation at the time of

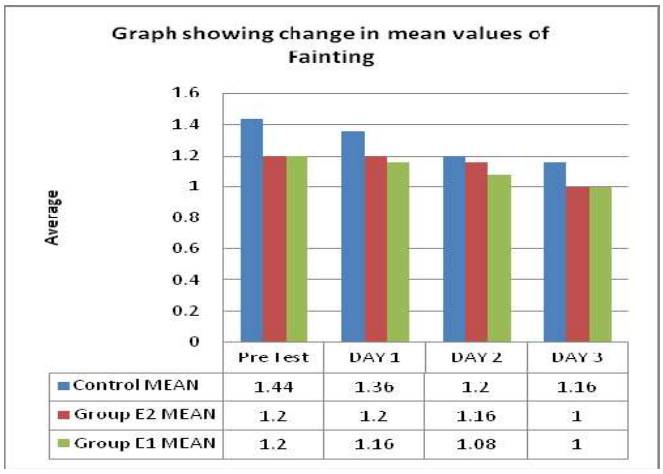












study at selected educational institute in Pune.

Exclusion criteria : Nursing students (i) suffering from dysmenorrhoea with irregular or infrequent menstrual cycles (usually outside of the typical range of a 21 to 35 days cycle); (ii) using an intra-uterine contraceptive device or taking oral contraceptive pills; and (iii) who don't have their dates of menstruation at the time of the study.

Tools and technique: The tool consisted of two sections, Section I: Modified Shortened Selected Dysmenorrhoea Symptoms Assessment Form, and Section II: Daily Symptom Calendar.

Validity: The content validity was obtained by consulting the experts from medical and nursing field. The tool was pretested on five nursing students with dysmenorrhoea.

Reliability: The reliability of the tool was established using Cronbach's Alpha Reliability Coefficient. For tools I & II the reliability was r= 0.8216.

Written permission was obtained from the au-

thorities and data collection was done in the months of August and September as per the menstruation dates of the respondents. The objectives and nature of the study were explained to the participants. Confidentiality was assured to all the participants and written consent was obtained from them.

Major Findings

The baseline values of selected symptoms of dysmenorrhoea in all three groups were approximately at similar levels before the intervention. This indicates that the subjects in the three were homogeneous with respect to the selected symptoms of dysmenorrhoea.

Data at post-intervention stage shows that throughout the first three days of menstruation there was significant reduction in dysmenorrhoea symptoms of (i) cramping and colicky pain in lower abdomen, dull aching pain in lower abdomen, low back pain, in control, experimental $group_2$, and experimental $group_1$; (ii) pain radiating down the legs, nausea, fatigue, outburst of irritability or bad temper in experimental $group_1$ and experimental $group_2$. But in control group reduction in symptom was not significant; diarrhoea in experimental $group_2$. But in control group and experimental $group_1$ reduction in symptom was not significant and lower abdominal pain without discomfort, breast tenderness, fainting was not significant in control, experimental $group_2$, and experimental $group_1$.

So, progressive muscle relaxation exercise and oral intake of ginger powder may have effect in some of the selected symptoms of dysmenorrhoea amongst the nursing students suffering from dysmenorrhoea at selected educational institutes in Pune.

MANOVA analysis indicates that there was significant difference in scores across each condition and time with a p value<0.05. Although there is a decline in the symptom scores across all groups during each day, interestingly, in groups E_1 and E_2 more significant result was observed with p value less than 0.05.

The calculated p value is less than 0.05. So $H_0$1 is rejected and $H_1$1 is accepted at the 5 percent level of significance. This statistically proves that progressive muscle relaxation has significant effect on these selected symptoms of dysmenorrhoea amongst the nursing students suffering from dysmenorrhoea at selected educational institutes in Pune.

With respect to the change of mean values of the dysmenorrhoea symptom cramping and colicky pain in lower abdomen, lower abdominal pain without discomfort, nausea and diarrhoea from all three groups.

The calculated p value is less than 0.05. So $H_0$1 is rejected and $H_1$1 is accepted at the 5 percent level of significance. This statistically proves that ginger powder has significant effect on these selected symptoms of dysmenorrhoea amongst the nursing students suffering from dysmenorrhoea at selected educational institutes in Pune.

With respect to the change of mean values of the dysmenorrhoea symptoms of dull aching pain in lower abdomen, low back pain, pain radiating down the legs, vomiting, outburst of irritability or bad temper & fainting from all three groups, all participants as reported in the pre-test and during days 1-3 of their period, significant difference in scores across each condition and time with a p value <0.05. Although there is a decline in these symptom scores across all groups during each day, interestingly, group E_1 & E_2 were equally significant.

The calculated p-value is less than 0.05. So $H_0$1 is rejected and $H_1$1 is accepted at the 5 percent level of significance. This statistically proves that progressive muscle relaxation and ginger powder both have significant effect on these selected symptoms of dysmenorrhoea amongst the nursing students suffering from dysmenorrhoea at selected educational institutes in Pune.

Thus progressive muscle relaxation exercise and oral intake of ginger powder both have reduced the selected symptoms of dysmenorrhoea for the first three days of menstruation. For some symptoms (i.e. fatigue and breast tenderness) progressive muscle relaxation was more effective. For some other symptoms (i.e. cramping and colicky pain in lower abdomen, lower abdominal pain without discomfort, nausea and diarrhoea) ginger powder was more effective. For the rest of the selected symptoms of dysmenorrhoea (i.e. dull aching pain in lower abdomen, low back pain, pain radiating down the legs, vomiting, outburst of irritability or bad temper, and fainting) both progressive muscle relaxation and ginger powder were equally effective. As ginger powder is effective for two more symptoms than progressive muscle relaxation, it can be stated that ginger powder in more effective than progressive muscle relaxation in treatment of selected symptoms of dysmenorrhoea.

There is a significant difference between the effects of progressive muscle relaxation and oral intake of ginger powder on selected symptoms of dysmenorrhoea amongst the nursing students suffering from dysmenorrhoea at selected educational institutes in Pune. So, $H_0$2 is rejected and $H_1$2 is accepted.

Discussion

Progressive muscle relaxation exercise and oral intake of ginger powder are separately effective in treatment of selected symptoms of dysmenorrhoea. But ginger powder is more effective as reduces some more symptoms than progressive muscle relaxation.

Regarding the effectiveness of progressive muscle relaxation in treatment of selected symptoms of dysmenorrhoea, the study finding is similar with the study conducted by Julie Brown 1, Stephen Brown 2 on Exercise for dysmenorrhoea which reveals that some evidence from the trial that exercise reduced the Moos' Menstrual Distress Questionnaire score during the menstrual phase ($p<0.05$) and resulted in a sustained decrease in symptoms over the three observed cycles ($p<0.05$).

A study conducted by Aganoff & Boyle also supports the present study findings. It compared regularly exercising women recruited from health and fitness clubs with non-exercisers (recruited from community sources). They reported significant effects of exercise on negative mood states and physical symptoms with significant effects on all measures across the menstrual cycle phase.

A review says that in pharmacopoeias, ginger is indicated for dyspepsia, distension, colic, vomiting, diarrhea, spasms and other smooth muscle disorders, colds, influenza, and rheumatism as an anti-inflammatory agent. Similarly in the present study ginger powder have reduced colicky pain, vomiting and diarrhoea among subjects as symptoms of dysmenorrhoea.

Another literature review on effectiveness of ginger in alleviating mild to moderate nausea and vomiting of pregnancy says that ginger is effective in reducing and nausea and vomiting in pregnancy. Similarly ginger powders were effective to reduce the symptoms nausea and vomiting as symptom of dysmenorrhoea.

Conclusion

Progressive muscle relaxation exercise and oral intake of ginger powder are effective in reduction of severity of some of the selected symptoms of dysmenorrhoea whereas ginger powder is effective for two more symptoms than progressive muscle relaxation. However, ginger powder is more effective than progressive muscle relaxation in treatment of selected symptoms of dysmenorrhoea.

Recommendation

Following recommendations are offered for future research:

- Similar studies may be conducted using other types of behavioural interventions such as guided imagery, music and music assisted relaxation exercise.
- An exploratory and detailed descriptive study may be undertaken to assess the (i) prevalence of dysmenorrhoea in nursing students; (ii) coping strategies used by the nursing students to manage dysmenorrhoea; and (iii) assess the factors influencing the prevalence and severity of dysmenorrhoea in nursing students.
- An experimental study can be conducted to assess the effectiveness of vitamin B1 in treatment of dysmenorrhoea.

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