EFFECTS OF MUSIC THERAPY ON ANXIETY, DEPRESSION
AND SELF-ESTEEM OF UNDERGRADUATES

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The symptoms of anxiety and depression, accompanied with low self-esteem, are increasing in Taiwanese undergraduates. It is essential for the school to assist them in reaching mental health. Hence, the purpose of this study was to examine the effects of music therapy on anxiety, depression and self-esteem of undergraduates. Twenty-four I-Shou University undergraduates who showed greater anxiety and depression with lower self-esteem were randomly assigned to experimental and control groups. The experimental group was provided 20 hours of music therapy, whereas the control group did not receive any treatment. Both quantitative and qualitative analyses were utilized to evaluate the changes of the participants. The findings indicated that the experimental group demonstrated a reduction in anxiety immediately after the music therapy and after a two-month follow-up, but only reduced depression after the follow-up. Moreover, the experimental group expressed that they experienced more positive changes, including more pleasure, relaxation, and confidence, and fewer negative emotions.

Key words: music therapy, depression, anxiety, self-esteem, Taiwanese undergraduates

Music plays an important role in daily life. It is a tool to assist people in transmitting their thoughts and feelings to one another, and a medium to help people express their inner feelings. Also, the effects of music on healing can be profound on all levels: physical, mental, emotional, and spiritual (Steckler, 1998). Music has been a powerful healing agent in primitive cultures and among present-day societies as well (Cohen, 1999). Nowadays, the focus on the role of music in the healing arts has intensified and musical experiences can direct people towards health and well-being.

Music therapy is a treatment method that combines the use of music with the practices of various psychological paradigms. Bruscia (1989) defined music therapy as an interpersonal process wherein musical experiences are used to improve, maintain, or restore the well-being of the client and to help clients find the resources needed to resolve problems and increase their potential for wellness. Boxill (1985) indicated that music therapy is the use of music as a therapeutic tool for the restoration, maintenance, and improvement of psychological, mental, and physiological health and for the habilitation, rehabilitation, and maintenance of behavioral, developmental, physical, and social skills, all within the context of a client-therapist relationship. Moreover, he stressed that the main purpose of music therapy is to assist the clients in reaching the most vigorous emotional and physical

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state of health that they can achieve.

The therapeutic effects of music on physical and emotional disorders that caused by stress, anxiety or some other associated psychological disorder have been documented by many studies. Cohen (1999) examined the effects of self-selected relaxation music on the reduction of anxiety for myocardial infarction patients. The result showed that patients who listened to relaxation music and rested had statistically significant reductions in anxiety scores compared to those control group patients. Kerr, Walsh, and Marshall (2001) confirmed that the music-assisted reframing intervention was more efficacious than the typical reframing intervention in reducing anxiety, modifying affect, and promoting imagery-vividness. Custer (1996) found that the use of music as a therapeutic tool lowered the levels of anxiety and stress.

Hanser and Thompson (1994) studied the effects of a music therapy strategy on depressed older adults. Symptoms of depression, anxiety and distress were reduced for the eight-week study period as well as for the nine-month follow-up period for those who participated in the study, as compared to the control group members who showed no improvement. Brotons, Koger, and Pickett-Cooper (1999) reviewed 30 clinical empirical studies conducted from 1985–1996 in music therapy and dementias. Sufficient evidence showed that music can be structured effectively to enhance social and emotional skills, and to decrease behavior problems, as well as used as a stimulus or prompt to aid in recall and language skills of people with Alzheimer's disease and related disorders. Waldon (2001) examined the efficacy of a music therapy protocol on mood states and levels of group cohesiveness in adult oncology patients and found significant improvement in mood state scores after involvement in all music therapy sessions. In addition, Hendricks, Robinson, Bradley, and Davis (1999) developed a 10-week music therapy for teenagers with depressive symptoms, and pre- and posttesting indicated a significant decrease in depressive symptoms.

Low self-esteem can affect students' academic results, social interactions, and the overall development of strengths and skills (Camilleri, 2000). Music therapy may be a way to experience success and positive attention, and thus increase self-esteem. McGuire (1985) reviewed music therapy and concluded that it could encourage client self-expression, enhance self-esteem, and provide experience in relating to others. Pfaff (1986) indicated that music therapy, the systematic application of music and musical activities to elicit specific changes in emotional, physical, or social behavior, can help pediatric cancer patients to reduce their anxiety and cope with hospitalization. It is because music is a nonverbal means of expression and can create an atmosphere of play in which tension is released, stress is reduced, and self-expression occurs. Music therapy goals are designed to increase self-esteem, provide emotional support, encourage relaxation, provide a medium for creative self-expression, provide an opportunity for control and independence, and maintain age appropriate development. Therefore, descriptive and experimental studies had documented the effects of music on quality of life, involvement with the environment, expression of feelings, awareness and responsiveness, positive associations, and
socialization (Prickett, 1988; Smith, 1990; Vanderark, Newman, & Bell, 1983). Based on all the above studies, music therapy proved itself to be a powerful tool in reducing anxiety, depression, and enhancing self-esteem. Thus, it is the aim of this study to verify the effect of the music therapy on anxiety, depression and self-esteem.

On the other hand, Gallant, Gallant, Gorey, Holosko, and Siegel (1997–98) conducted a qualitative assessment of the use of music in four sessions of group work on three couples and inferred that the music-group work intervention facilitated the alleviation of depression. Wyatt’s study (2000) showed that the difference scores for the music therapy group were greater but not significant on the Rosenberg Self-Esteem Scale. Nevertheless, the interviews revealed that most of the students felt better about themselves after participating in the music therapy sessions. From the qualitative approach, Chong (2000) also confirmed that the subject’s self-evaluations of the voice and singing ability were strong predictors for self-esteem. Therefore, to explore more profoundly, this study used both quantitative and qualitative analyses to evaluate the function of music therapy.

There are many different forms of music therapy, such as analytical music therapy, group music therapy, receptive music therapy, and music-assisted relaxation (Custer, 1996). Previous research findings substantiated that music-listening strategies may be useful to distressed individuals (Hanser, 1988). For adolescents, listening to music would likely be a method of coping with environmental stressors (White, 1985) and loneliness (Moore & Schulz, 1983). The study of Robb (2000) revealed that muscle relaxation and music listening were effective in reducing anxiety. Russell (1992) compared the effect of music, imagery, and cognitive therapeutic techniques in reducing anxiety of university students. He found that familiar-sedative music plus imagery was the most effective technique. DiCamillo (1999) discovered that imagery techniques were effective when paired with the music, and 71% stated that these techniques were the most beneficial. All participants stated that the music therapy program enhanced family bonding with the baby during the immediate post-partum period. Fagen and Wool (1999) found that the combined use of traditional psychiatry and music therapy was an effective treatment for psychosomatic illness. They described techniques in music therapy and guided imagery as a form of mind-body treatment used to address excessive somatic complaints, and as a vehicle for metaphoric insight-oriented therapies. Maack and Nolan (1999) also confirmed that the guided imagery and music therapy were helpful for clients with symptoms of anxiety and fear, and for clients who want to increase their self-esteem.

Musical improvisation is a form of non-verbal communication. According to Bruscia (1987), music improvisation is the use of live music-making, usually by therapist and client, as the focus of therapeutic work. Music therapists have also considered music improvisation to be more than just musical, which is underpinned by medical, neurological, social, psychological or psychodynamic thinking (Pavlicevic, 2000). In addition, Wiener (1999) stressed that using movement and expressive techniques such as dance, art, and drama can allow clients to express
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emotions more freely and often lead to newer and deeper insights. In this study, music therapy was performed in group intervention which consisted of series of musical activities as music listening, musical imagery, and improvisation, as well as body movement, muscle relaxation, story creating, drawing, and psychological drama.

The therapeutic effects of music on patients have been documented by many studies. Good results have been achieved in treating psychiatric, elderly, anesthetic, obstetric, surgical, myocardial infarction, and cancer patients (Cohen, 1999; DiCamillo, 1999; Lathom & Eagle, 1982; Pfaff, 1986). Also, the practice of music therapy in school settings focused mostly on children with disabilities such as mental retardation, emotional disturbance, speech impairment, and multiple-handicapped children (Smith & Hairston, 1999). Despite extensive studies on the healing properties of music in clinical settings and exceptional children, little was known about the therapeutic use of music in the treatment of university students, so it was worthwhile to implement the music therapy on undergraduates. Furthermore, music offered a more effective means of modifying the affective system (Sutherland, Newman, & Rachman, 1982). Due to academic pressure, most Taiwanese undergraduates suffer symptoms of anxiety and depression as well as low self-esteem. Hence, the idea that music healing effects could reduce Taiwanese undergraduates' anxiety and depression, and enhance their self-esteem was of interest. The purpose of this study was to examine the effects of music therapy on depression, anxiety and self-esteem of undergraduates because of these issues.

Method

Participants:

Twenty-eight undergraduates were recruited from I-Shou University, Taiwan. All participants were diagnosed with major or minor depression, anxiety, and low self-esteem, based on a psychological test evaluation. If their scores were higher than other volunteers (approximately 100 undergraduates from different classes) in Self-Rating Depression and Self-Rating Anxiety, they met the first criteria. Second, their scores were lower in the Self-Esteem Scale. Third, they volunteered to take part in the study. After signing a consent form, they were randomly assigned to experimental and control groups. However, two participants in the experimental group dropped out early in the study due to difficulty in meeting each session and there were two in the control group who failed to return assessment. The final sample consisted of 24 undergraduates, comprised of 12 males and 12 females, ranging in age from 19 to 21.

Research Design and Intervention Procedure:

An experimental study was executed to investigate effectiveness of music therapy. The experimental group was provided with 10 sessions of music therapy once a week for 10 consecutive weeks, each session lasting for 2 hours, whereas the control group did not receive any treatment. The experimental group was treated with 20 hours and all sessions were audiotaped and recorded by the author. The activities of 10 music therapy sessions were showed in Table 1.

This study adopted an experimental-control group pretest-posttest design. All participants were administered all the measurements immediately prior to treatment and immediately following treatment. They all also received all the tests again after two months posttreatment. In addition, a two-way analysis of covariance (ANCOVA) was conducted to compare the pretest and posttest differences among groups, using the pretest scores as the covariates. To examine the effect of the follow-up, ANCOVA was also utilized, using the pretest scores as the covariates. If there was any statistical difference between groups,
Table 1. Activities of Music Therapy Session

<table>
<thead>
<tr>
<th>Session</th>
<th>Activity</th>
<th>Session</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acquaintance with Each Other</td>
<td>6</td>
<td>Stories Creating with Music Listening</td>
</tr>
<tr>
<td>2</td>
<td>Music Listening and Feelings Expression</td>
<td>7</td>
<td>Musical Imagery</td>
</tr>
<tr>
<td>3</td>
<td>Body Movement and Muscle Relaxation</td>
<td>8</td>
<td>Drawing in conjunction with Music Listening</td>
</tr>
<tr>
<td>4</td>
<td>Singing</td>
<td>9</td>
<td>Psychological Drama</td>
</tr>
<tr>
<td>5</td>
<td>Improvisation</td>
<td>10</td>
<td>Farewell and Feelings Sharing</td>
</tr>
</tbody>
</table>

an adjusted means was conducted to compare the difference.

Measures:

Four instruments were utilized in this study. In addition to the Feedback Inventory used for qualitative analysis, the others were the major instruments for quantitative analyses and translated into Chinese using the original English version as the basis.

Zung’s Self-Rating Depression Scale

The Zung’s Self-Rating Depression Scale (SDS) was developed to measure depression as a clinical disorder and quantify the symptoms of depression (Zung, 1965). The SDS consists of 10 items worded symptomatically positively (e.g., "I feel that I am useful and needed.") and 10 items symptomatically negatively (e.g., "I feel down-hearted, blue, and sad.") to examine three basic aspects of depression: pervasive affect, physiological concomitants, and psychological concomitants. Items on the SDS were specifically selected to tap one of the three aspects of depression and included cognitive, affective, psychomotor, somatic, and social-interpersonal items. Respondents were asked to rate each of the 20 items on a sliding scale to show how it applied to them at the time of testing. The SDS was scored by summing up the values obtained on each item to produce a raw score ranging from 20 to 80, with higher scores representing higher depression.

The SDS had fair internal consistency, with a split-half reliability of .73, and good known-group validity in distinguishing between depressed and nondepressed samples, and good concurrent validity in regard to correlations with other depression measures, such as the Beck Depression Inventory and the Hamilton Rating Scale for Depression. The Chinese version was translated by Yu (1984). Using 107 undergraduates as the subjects, Yu found that the SDS had good internal consistency and good concurrent validity with the Chinese Health Questionnaire.

Zung’s Self-Rating Anxiety Scale

The Self-Rating Anxiety Scale (SAS) was constructed to assess anxiety as a clinical disorder and quantify anxiety symptoms (Zung, 1971). It is a 20-item instrument consisting of the most commonly found characteristics of an anxiety disorder (5 affective and 15 somatic symptoms). Five of the items were worded symptomatically positively (e.g., "I feel calm and can sit still easily.") and 15 were worded symptomatically negatively (e.g., "I feel more nervous and anxious than usual."). Respondents were asked to use a 4-point scale to rate how each item applied to them during the past week. The scores ranged from 20 to 80, with higher scores representing higher anxiety. Zung (1971) found that the SAS had fair concurrent validity, correlating significantly with the Taylor Manifest Anxiety Scale and with the clinician rating scale. The Chinese version was translated by Yu (1984) and was also found to have good reliability and good concurrent validity with the Chinese Health Questionnaire.

Rosenberg’s Self-Esteem Scale

The 10-item self-esteem scale (SES) was designed to assess global feelings of self-worth or self-acceptance (Rosenberg, 1965). Five items were phrased positively (e.g., "On the whole, I am satisfied with myself."), whereas the other five items were phrased negatively (e.g., "All in all, I am inclined to feel that I am a failure."). This scale provided an established measure of positive self-evaluation and acceptance. The SES was originally scored using a 4-point response format (strongly agree, agree, disagree, strongly disagree). In this study, to obtain broader ranges of SES scores, the scale shifted to a 5-point scale from strongly disagree to strongly agree, resulting in a scale range of 10-50 with higher scores representing higher
self-esteem.

According to Rosenberg (1965), the SES had test-retest reliability of .82. He also demonstrated evidence of validity by showing that high scores were associated with leadership and low scores were associated with depression and psychosomatic illness. Silber and Tippet (1965) found that the Rosenberg scale correlated .67 to .83 with test of congruence between self and ideal self. To pretest the Chinese version translated by the researcher, a pilot study was conducted with 150 1-Show University students in Taiwan. Results showed that the alpha reliability coefficient was .80.

Feedback Inventory

Six open questions were developed by the researcher to examine the self-improvement of the music therapy group participants. These questions asked the experimental group participants to describe how the music therapy affected them in the areas of depression, anxiety, and self-esteem. If they felt that there was no improvement after attending the music therapy, they needed to explain the reasons. Also, they had to indicate the advantages and disadvantages of the music therapy to them.

Results

Treatment Effect

Means and standard deviations of the pretest, posttest, and follow-up for anxiety, depression, and self-esteem measures between groups are displayed in Table 2. The results of two-way analyses of covariance among groups appear in Table 3. Table 3 shows only a significant difference in anxiety in the music therapy experimental group relative to the control group. No statistically significant difference was noted in depression and self-esteem between the experimental group and the control group. Also, there were no significant gender differences on the variables of anxiety, depression, and self-esteem. Based on the adjusted mean scores, the experimental group (the adjusted $M=33.30$) manifested lower anxiety than the control group (the adjusted $M=40.89$) after the treatment. Therefore, the music therapy can assist undergraduates in reducing anxiety.

Follow-Up Effect

Using the pretest scores as the covariates, the results of the ANCOVA for the follow-up are summarized in Table 4. As shown in Table 4, the experimental group and the control group differed significantly in anxiety and depression, but did not differ significantly in self-esteem. Based on the adjusted mean scores, the experimental group (the adjusted $M=33.31$, 37.38) exhibited lower anxiety and depression than the control group (the adjusted $M=41.61$, 43.37). In other words, over a 2-month follow-up period, the music therapy had continuous effects on anxiety and depression. However, there were no significant gender differences in all the follow-up measures.

The Feedback of Experimental Group Participants

After the music therapy, all the participants felt that they became more pleasant, optimistic, relaxed, confident, and less annoyed, anxious, and depressed. They also had positive attitudes and expectations of the future. Since they had frequent interactions with others in the group, they became more expressive. In short, out of
Table 2. Means and Standard Deviations of the Pretest, Posttest, and Follow-up for Anxiety, Depression, and Self-esteem by Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Pretest</th>
<th></th>
<th>Posttest</th>
<th></th>
<th>Follow-up</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Experimental Group</td>
<td>Male</td>
<td>41.33</td>
<td>1.37</td>
<td>31.67</td>
<td>8.38</td>
<td>32.67</td>
<td>7.20</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Female</td>
<td>45.17</td>
<td>5.38</td>
<td>35.83</td>
<td>8.91</td>
<td>35.00</td>
<td>8.20</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43.25</td>
<td>4.25</td>
<td>33.75</td>
<td>8.53</td>
<td>33.83</td>
<td>7.46</td>
</tr>
<tr>
<td>Control Group</td>
<td>Male</td>
<td>41.33</td>
<td>8.17</td>
<td>40.33</td>
<td>5.89</td>
<td>40.33</td>
<td>6.59</td>
</tr>
<tr>
<td>Depression</td>
<td>Female</td>
<td>42.33</td>
<td>2.34</td>
<td>40.50</td>
<td>2.66</td>
<td>41.83</td>
<td>3.71</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>41.83</td>
<td>5.75</td>
<td>40.42</td>
<td>4.36</td>
<td>41.08</td>
<td>5.16</td>
</tr>
<tr>
<td>Experimental Group</td>
<td>Male</td>
<td>45.67</td>
<td>3.67</td>
<td>41.33</td>
<td>6.50</td>
<td>38.50</td>
<td>4.59</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>Female</td>
<td>44.67</td>
<td>7.97</td>
<td>39.50</td>
<td>7.80</td>
<td>38.50</td>
<td>7.09</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>45.17</td>
<td>5.94</td>
<td>40.42</td>
<td>6.91</td>
<td>38.50</td>
<td>6.16</td>
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<tr>
<td>Control Group</td>
<td>Male</td>
<td>43.50</td>
<td>7.58</td>
<td>43.50</td>
<td>7.56</td>
<td>43.00</td>
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</tr>
<tr>
<td></td>
<td>Female</td>
<td>41.17</td>
<td>4.17</td>
<td>41.67</td>
<td>7.61</td>
<td>41.50</td>
<td>4.23</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>42.33</td>
<td>5.96</td>
<td>42.58</td>
<td>7.29</td>
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<td>Experimental Group</td>
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<td>28.67</td>
<td>3.93</td>
<td>33.50</td>
<td>4.09</td>
<td>34.50</td>
<td>5.01</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>Female</td>
<td>28.17</td>
<td>7.05</td>
<td>32.50</td>
<td>6.81</td>
<td>33.17</td>
<td>7.49</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>28.42</td>
<td>5.46</td>
<td>33.00</td>
<td>5.38</td>
<td>33.83</td>
<td>6.12</td>
</tr>
<tr>
<td>Control Group</td>
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<td>30.33</td>
<td>5.39</td>
<td>31.33</td>
<td>4.08</td>
<td>32.50</td>
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</tr>
<tr>
<td></td>
<td>Female</td>
<td>37.33</td>
<td>6.41</td>
<td>37.33</td>
<td>6.06</td>
<td>36.83</td>
<td>7.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>33.83</td>
<td>6.73</td>
<td>34.33</td>
<td>5.84</td>
<td>34.67</td>
<td>5.77</td>
</tr>
</tbody>
</table>

...attending the music therapy, they learned to overcome negative emotions, release tension and express their inner feelings.

**Discussion**

This study examined the effectiveness of music therapy on the depression, anxiety and self-esteem of undergraduates. Results from the study suggested that music therapy could alleviate anxiety and depression. Also, from the qualitative analyses, the experimental group participants expressed that they experienced personal growth such as more happiness, confidence, and that they experienced less anxiety and depression than before. These findings were consistent with numerous studies (Cohen, 1999; Custer, 1996; Kerr, Walsh, & Marshall, 2001; Russell, 1992; Waldon, 2001) which showed that music therapy could help reduce anxiety and tension. Since
music therapy was shown to be successful in reducing the anxiety and depression of undergraduate students, this study initiated the use of music therapy technique with undergraduates.

As for depression, the results of the present study confirmed the previous studies that emphasized that through music group therapy participants could get relief from the depression and stress (Jones & Field, 1999; Gallant et al., 1997–98).
Nevertheless, in this study, there was no instant treatment effect for depression, but only a follow-up effect. This data partially supported Hanser and Thompson's (1994) study. They found that symptoms of depression, anxiety and distress were decreased for the eight-week intervention period as well as for the nine-month follow-up period for the experimental group participants. Probably, after ten weeks of therapy participants had a little reduction in depression and tended to be happier than before. However, their inner problems would not yet have been resolved and the academic pressure was not totally decreased. Possibly their determination to change was not strong enough. Or maybe they needed more time to overcome their negative emotions. So, after a two-month period, they might learn to have a more positive attitude towards life, their emotions gradually becoming more stable. Future research may consider increasing the number of music therapy sessions to enhance the ability of depressed participants to cope with stress and encourage the determination to change.

From the quantitative analyses, participants did not make any improvement in self-esteem after the music therapy. This finding was inconsistent with earlier studies (Camilleri, 2000; McGuire, 1985; Pfaff, 1986), but supported the study of Wyatt (2000). However, the qualitative analyses, as Wyatt's study (2000), showed that all the experimental group participants felt that they had more confidence. Hence, music therapy experiences can still help people enhance their self-esteem. The implication for future research is that it is better to evaluate the effects of music therapy using both quantitative and qualitative analyses.

Not only does music therapy deal with social and emotional goals, but it can also address many cognitive, developmental, and physical areas such as concentration, attention span, focus, memory, content learning, gross and fine motor skills, and coordination. Music therapy is a creative method of treatment that encourages the development of social and emotional life skills. These skills are not only necessary to function in society, but are essential for academic and personal success, allowing individuals to live life to the fullest of their potential (Camilleri, 2000). Therefore, music therapy is a path to social-emotional growth and academic success. Based on all these advantages as well as the positive evidence of this present study, music therapy can not only be applied in a number of clinical settings and social work practice, but also in school settings such as universities.

In addition, there are a few limitations of the present study. First of all, many threats to internal validity such as the Hawthorne effect could have affected the validity of the study. Another threat to the internal validity was the feedback inventory which asked the participants to explain the reasons when they did not have any improvement. The participants might have chosen to say that they had improvement because they did not want to figure out the reasons for having no improvement. Further research shall be cautious with the threats to the internal validity. Last, since the present findings were based on the undergraduates of I-Shou University, replication of the present findings in students at other universities is needed.
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Reference Notes


REFERENCES


(Manuscript received June 26, 2001; Revision accepted April 24, 2002)