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The Influence of Lifelong Learning on Mood

Patricia M. Simone and Amie Haas

Abstract

Mood state was assessed both before and after four different two-hour classes in the Osher Lifelong Learning Institute at Santa Clara University with the self-report Profile of Mood States-Brief Form (POMS-BF) developed by McNair, Lorr, and Droppleman (1992). Sixty-eight students (60% women), ages 49 to 92, filled in the 5-point mood assessment survey rating how they felt at that moment prior to the start of class and again two hours later, at the end of class. At the start of class these students reported very low levels of negative affect (tension, anger, depression, confusion, fatigue). Following the two-hour Osher class students felt even less angry, less tense, and less depressed than they were before the class. These results are discussed in relation to mood regulation and the detrimental impact of negative affect on cognition (e.g., Wilson, Mendes de Leon, Bennett, Bienias, Evans, 2004).

Are students happier after attending an Osher Lifelong Learning Institute class? Do Osher classes improve mood? As a director of an Osher Institute, I would like to be able to tell members and potential members that in addition to the many reasons to become a member (such as improved cognition), taking classes can also make you happier. Anecdotally I knew this was true, but I did not yet have the evidence.

Mood and Cognition

The association of depressive symptoms with cognitive impairment in the elderly is becoming well-established in the literature (e.g., Wilson, Mendes de Leon, Bennett, Bienias, & Evans, 2004; Paterniti, Verdier-Taillefer, Dufouil, Alperovitch, 2002; Geerlings, Schoevers, Beekman, Jonker, Deeg, Schmand, Ader, Bouter, van Tilburg, 2000). Although it is difficult to determine the exact relationship between mood state and cognition (Stewart, 2004), there is mounting evidence which implicates symptoms of depression as a risk factor for cognitive decline. This is an important association because depressive symptoms and concerns about cognitive ability are common in the elderly (e.g., Jorm, Christensen, Henderson, Korten,

MacKinnon, & Scott, 1994). Therefore, finding ways to alleviate depressive symptoms in older adults may be beneficial in maintaining cognitive status.

How common is depression in the elderly? There is some debate over the relationship between age and mood disorders, with depression most often evaluated. Some studies report that depression rates decrease with age (e.g., Flint, 1994) and others report that depression rates increase with age (e.g., Wernicke, Linden, Gilberg, & Helmchen, 2000). Through a literature review, Djernes (2006) found that depression is frequent in the elderly with prevalence rates of major depression ranging from 0.9%–9.4% in community-dwelling aged adults.

In another recent study, Teachman (2006) examined the relationship between age and symptoms of anxiety and depression. Teachman defined depression as a collection of symptoms lying along a continuum rather than as a discrete clinical category of major depression, in part because depressive symptoms that do not reach threshold for diagnosis in older adults can still be disruptive to daily functioning (e.g., Schaub & Linden, 2000) and may lead to clinical depression over time (e.g., Paterniti et al., 2002). Using self-report data from community-dwelling adults, Teachman (2006) found that symptoms of negative affect (depression and anxiety) began to increase in older adulthood (mid-70s).

Improving Mood

People often participate in a variety of activities to improve their mood. Thayer, Newman, and McClain (1994) asked adults of many ages (18-89) to identify strategies used to modify their mood and found an overlap between methods people used to change a bad mood, reduce tension, and increase energy, with exercise being most effective. Engaging in distracting activities, such as doing chores, spending time on a hobby or fun activity, shopping, reading, and writing, were also identified as highly successful in changing a bad mood.

Thayer et al. (1994) identified gender and age differences in strategies used to improve mood. Men tended to seek pleasurable activities and distraction while women used more passive strategies such as social support. In addition, older adults tended to rely more on tending to chores and engaging in religious practice to improve mood than younger adults.

The question this research aims to address is whether taking a university-affiliated Osher class can improve mood in men and women over the age of 50. The instrument used in this study to assess mood states, the Profile of Mood States (POMS) is a widely accepted measure of psychological distress in several populations, including aged adults. The brief version of the POMS used in this study (POMS-BF) asks 30 questions, with five questions measuring each of the following six subcategories of mood: tension, depression, anger, fatigue, confusion, and vigor.

Method

Participants ($N = 68$, 60% females) consisted of adults between 49 and 92 years of age ($M = 68.4$, $SD = 8.0$) enrolled in one of four Osher classes offered at Santa Clara University in the fall 2006 or winter 2007. Twenty-eight participants were enrolled in “Historical Jesus,” five in “Genetically Modified Foods,” 17 in

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“California History,” and 18 in “Armchair Traveler: Destination France.” Pre- and post-surveys on mood were given on the second or third of five class sessions in each class.

Materials

Mood state was measured by self report both before and after a two-hour Osher class using the Profile of Mood States-Brief Form (POMS-BF; McNair, Lorr, and Droppleman, 1992). The POMS-BF is a brief, standardized, and commonly used measure of psychological distress in clinical and non-clinical populations. The self-report survey contains 30 adjectives with five separate questions assessing six aspects of mood: tension, depression, anger, vigor, fatigue, and confusion. These adjectives were rated on a 5-point scale with low scores (0, 1) indicating that the person was experiencing that feeling not at all or very little, and higher scores (3, 4) indicating that the person was experiencing those feelings quite a bit or extremely at that time. Scoring on each dimension involved adding up the scores of each of the five adjectives in that related mood dimension. Mood dimension scores could range between 0 and 20, with high numbers reflecting more of that mood and low numbers indicating less of that mood.

Procedure

A researcher explained the study prior to the start of four separate Osher classes at Santa Clara University (Historical Jesus, Genetically Modified Foods, California History, Armchair Traveler). All students were informed that the nature of the study was to assess variations in mood over the course of two hours. There were no risks to participation and no one was compensated in any way for participating. Those interested in participating were asked to sign a consent form approved by the IRB at Santa Clara University. They were then given the POMS-BF and asked to indicate on a five-point scale how each of the words described how they felt right now. Low responses (zero and 1) indicated little or no feeling, and higher responses (3 and 4) indicated more intense feelings (quite a bit or extremely). A score of 2 reflected having that feeling moderately. Upon completion of the class two hours later, they were asked to fill out another POMS-BF, again indicating on this five-point scale how they felt at that moment.

Results

Scores on each dimension of mood (tension, depression, anger, vigor, fatigue, and confusion) were calculated by adding the number given to each of the five questions in that dimension, with high scores indicating more of that emotion and low scores indicating less of that emotion. The highest score of 20 would indicate a great deal of that emotion. The lowest score of zero would indicate having that feeling not at all. See Table 1 for a list of all the scores for men and women both before and after class.

The composite score for each of the six emotion dimensions was subjected to a one-way repeated measures ANOVA comparing pre- and post-class survey scores. The between subjects factor was gender.

Table 1: Mean Post-Pre POMS Scores (SDs)

Mood	Total		Men		Women	
	Before Class	After Class	Before Class	After Class	Before Class	After Class
Tension	1.7 (3.0)	0.8 (1.8)*	2.2 (3.9)	0.9 (1.5)	1.4 (3.0)	0.8 (2.0)
Anger	0.9 (1.6)	0.5 (1.3)*	1.4 (1.9)*	0.9 (1.8)*	0.6 (1.2)	0.3 (3.1)
Depression	1.0 (2.0)	0.8 (1.5)**	1.6 (2.7)	1.0 (2.1)	0.6 (1.4)	0.6 (1.0)
Confusion	3.5 (2.5)	3.2 (2.4)	4.3 (3.0)**	4.2 (4.9)**	3.1 (1.9)	2.6 (1.8)
Fatigue	2.4 (3.0)	2.4 (2.9)	3.0 (3.6)	2.6 (2.7)	2.0 (2.5)	2.3 (3.1)
Vigor	10.1 (4.7)	8.4 (4.7)*	10.0 (5.3)	9.2 (4.9)	10.2 (4.4)	7.8 (4.6)**

* $p < .05$ ** $p = .08$

Tension: Participants reported very low feelings of tension before class, with a composite score of 1.7 for the five adjectives (tense, shaky, uneasy, nervous, and anxious). Nonetheless, while their feelings of tension were low to begin with, feelings of tension were reduced following their class (0.8). This decrease in tension was significant, $F(1, 66) = 6.6$, $MSE = 4.48$, $p < .05$ and was experienced by both men and women, $F(1, 66) = .86$. An examination of Table 1 shows that there was no difference in tension reported by men and women, $F(1, 66) = .74$.

Anger: In general men reported significantly more feelings of anger than did women, $F(1, 66) = 5.52$, $MSE = 2.9$, $p > .05$. Before the class, scores on anger-related questions (angry, grouchy, annoyed, furious, bad-tempered) were higher for the men (1.4) than for the women (0.6). Both groups reported reduced feelings of anger at the end of class, $F(1, 66) = 4.46$, $MSE = 1.16$, $p < .05$, with men dropping to 0.9 and women to 0.3 and this did not interact with gender, $F(1, 66) = 0.19$.

Depression: Once again men reported more feelings of depression than did women both before (1.6 for men compared to 0.6 for women) and after class (1.0 compared to 0.6). This difference between men and women approached significance, $F(1, 66) = 3.1$, $MSE = 5.4$, $p = .08$. Additionally, the comparison of feelings of depression (sad, unworthy, discouraged, lonely, gloomy) before and after class approached significance, $F(1,66) = 3.13$, $MSE = 0.9$, $p = .08$ and because depressive symptoms in both men and women declined across tests, the interaction between gender and depression was not significant, $F(1,66) = 2.6$.

Confusion: Men reported more feelings of confusion (confused, muddled, bewildered, inefficient, forgetful) than did women both before (4.3 compared to 3.1) and after class (4.2 compared to 2.6). This gender difference was significant, $F(1,66) = 6.9$, $MSE = 8.9$, $p < .05$. Feelings of confusion did not change from before to after class, $F(1, 66) = 1.28$ and there was no interaction with gender, $F(1,66) = 0.51$.

Fatigue: There was no significant difference in level of fatigue (worn out, fatigued, exhausted, sluggish, weary) in men and women, $F(1,66) = 1.04$. Reported feelings of fatigue before class for men (3.0) and women (2.0) did not change significantly after class for either men (2.6) or women (2.3). Therefore there were no significant effects of the class on fatigue, $F(1, 66) = 0.09$, and there was no interaction with gender, $F(1,66) = 1.11$.

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Vigor: Men and women reported similar levels of vigor (lively, active, energetic, full of pep, vigorous), $F(1,66) = 0.29$. Both men and women reported feeling less vigorous after class, $F(1,66) = 14.00$, $MSE = 6.1$, $p < .05$, with average scores of for men going from 10.0 to 9.2 and 10.2 to 7.8 for women. Women experienced a more prominent reduction in vigor following class, an effect that approached significance, $F(1,66) = 3.15$, $MSE = 6.1$, $p = .08$.

Discussion

In general, Osher students attending these classes were not experiencing a great amount of the negative feelings of tension, depression, anger, fatigue, and confusion at the start of class. The highest score possible is 20 on each of these dimensions and Osher students reported very low feelings of tension (1.7), depression (1.0), anger (0.9), fatigue (2.4), and confusion (3.5) before the start of class. It is notable, therefore, that at the end of class two hours later students reported elevated mood. They were less tense (0.8), less angry (0.5), and less depressed (0.8) than when they started class.

Also interesting were the mood differences in men and women. Men were more angry, more depressed, and more confused than women in these classes. Even though both groups were less angry at the end of class, the level of anger in the men at the end of class (0.9) was still greater than that of the women even at the start of class (0.6). The same is true for depression. Men reported more depressive feelings at class end (1.0) than did women at the start of class (0.6). It is noteworthy that the women in this sample reported virtually no depressive feelings (0.6 on a scale from 0 to 20). It is perhaps because of this floor effect that the finding of reduced depression only approached significance.

In addition to being more angry and depressed than the women in the class, these men also reported more feelings of confusion, a feeling that was not affected by the class in either men or women. While Osher students did not feel less confused at the end of class, it is important to note that they also did not feel more confused following the class. Therefore, while the material was likely new and perhaps challenging for the students, this challenge did not cause them to feel unsure of themselves.

Benefits of sitting in a two-hour Osher class include feeling less angry, less tense and, at least for men, less depressed. However, a negative consequence to sitting in an Osher class is that one also feels less energetic as the level of vigor dropped from 10.1 to 8.4 at the end of class, an effect that was even more pronounced in the women (10.2–7.8). Since they took the pretest upon arrival to the classroom after having walked some distance and they filled in the post test after sitting in a chair for the two-hour class, it is suspected that this decrease in vigor was due to lack of mobility for the duration of class.

Conclusion

This research has found yet another reason to take Osher classes: they can improve your mood, and improved mood may make it more likely to continue taking classes and may even have a positive effect on cognition. While Osher members were not experiencing high levels of any symptoms of negative affect, the negative

emotions of tension, anger, and depression were significantly reduced following the classes. Men, who were more angry and depressed than the women in this sample, experienced an even greater benefit of mood elevation from attending the classes. Additionally, students were not more confused at class end, even though it is likely that the material they learned in class was novel and challenging. While level of vigor was reduced in all students, this effect likely resulted from sitting for two hours. Further experiments can determine how quickly vigor returns to pre-class levels and how long lasting the effects of mood elevation following a lifelong learning class are.

The fountain of youth eluded Ponce De Leon. Even so, thanks to many environmental and behavioral changes in the last century, Americans born today can expect to live nearly 30 years longer than Americans born 100 years ago. Years have been added to our lives. The challenge remaining is keeping the life in our years. What does it take to age well? Rowe and Kahn (1998) suggested three keys to successful aging: (1) maintain high cognitive and physical functioning, (2) stay engaged with life, and (3) avoid disease. Taking classes can improve cognition (use it or lose it) and, we have now demonstrated, classes can also improve mood, two factors that may make it easier to stay engaged with life.

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Benefits of sitting in a two-hour Osher class include feeling less angry, less tense, and, at least for men, less depressed.

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Wilson, R.S., Mendes de Leon, C.F., Bennett, D. A., Bienias, J. L., & Evans, D. A. (2004). Depressive symptoms and cognitive decline in a community population of older adults. *Journal of Neurology, Neurosurgery, and Psychiatry*, 75, 126–129.

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