

The Relationship Between Somatic Complaints and Life Stress, Overwhelm,  
Beauty Concerns, Pop Consumption and Exercise

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This is a paper written by a PSY 211 student. It is generally strong, but not without flaws. The instructions were not the same as for any present assignment.

**Abstract**

Physical, or somatic, complaints are a problem for many people, and are often a concern of many doctors and psychologists. Previous studies have indicated that stress, exercise, and pop drinking are related to somatic complaints; therefore, this study will look at the effects of life stress, overwhelm, beauty concerns, exercise and pop drinking to determine their relationship to physical complaints. It is hypothesized that all of these variables will have an effect on somatic discomfort. 326 participants completed a survey designed by a section of Michael Hoerger's Psychological Statistics course at Central Michigan University, which measured a variety of variables. This study discovered that life stress, overwhelm, beauty concerns, and pop drinking all were positively related to somatic complaints. Surprisingly, exercise was not significantly related.

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“Are you tired, run down, listless? Do you poop out at parties? Are you unpopular? The answer to all your problems is in this little bottle. Vitameatavegamin. Yes, with Vitameatavegamin you can spoon your way to health.” Well, unfortunately Vitameatavegamin is not the answer to all of society’s health problems as this quote by Lucille Ball in an “I Love Lucy” episode, conveys; however, research shows that physical complaints can be lessened when a few key factors are taken into consideration. Physical, or somatic, complaints, such as muscle aches, soreness, headaches, and stomach aches are a problem for many people, and are often a concern of many doctors and psychologists. Often these somatic discomforts are not caused simply by a viral or bacterial infection, but are often related to other aspects of an individual’s life. Through research and discovery of aspects of life that are related to physical discomfort, action can be taken to lessen physical discomfort and increase individuals’ quality of life.

Many people do not realize that stress can lead to physical problems. It can be something as small as a stomach ache or more serious, such as a stomach ulcer. A study examining the stress levels of low-income urban youth and the stress’ relation to somatic complaints, mainly stomach aches and headaches, discovered that youth with high levels of stress reported levels of somatic complaints 12% higher than the control sample (Reynolds et al., 2001, p. 499). In addition, a study conducted in the United Kingdom discovered that sickness related work absences cost the United Kingdom economy over 12 billion pounds (approximately 25 billion United States dollars), in which 50% of those absences were stress related (Endler & Corace, 2001, p. 686). Because the relationship

between stress and somatic complaints was determined to be highly related in previous studies, this study will first examine the relationship between physical complaints and stress, specifically life stress and how overwhelmed individuals feel. In addition the relationship of beauty concerns and somatic complaints will be looked at, with the theory that people who rate high on beauty concerns are adding more stress to their lives than people with low levels of beauty concerns. Along the same lines, high levels of beauty concerns can lead to serious disorders, such as anorexia nervosa and bulimia nervosa. While many people have not been diagnosed with an eating disorder, they are suspected to display mild forms of these disorders (Kansi, J., Wichstrom, L., & Bergman, L. R., 2005). In addition, eating disorders in any form put individuals at high risk for physical problems. Some of the more serious physical problems include hypothalamic dysfunction, osteoporosis, amenorrhea, and oligomenorrhea (Kaplan-Seidenfeld & Rickert, 2001).

In general, people are told that exercise solves a multitude of problems. Not only does it increase physical fitness, but it helps lower health risks, and triggers the release of endorphins. In general exercise increases individual quality of life. A study on women with Fibromyalgia found that women who participated in aquatic training had better physical function, less body pain, and a better general health perception after only twelve weeks (Carus & Hakkinen, 2007). Therefore, exercise will also be examined in this study as a potential reduction of somatic complaints.

The last variable examined in this study will be soda consumption. A recent study on soft drinks and metabolic syndromes found that of people who consume one or more soft drinks per day were 48% more likely to develop a metabolic syndrome or other

health problem. While the study did offer many explanations for why this may be, soft drink consumption was at the heart of the matter (Dhingra et al., 2007, p. 482).

Physical, or somatic, complaints, such as muscle aches, soreness, headaches, and stomach aches are a problem for many people and therefore are important to study. In this study it is expected that stress plays a large role in physical complaints, and in addition, exercise and soft drink consumption also are linked.

### **Hypothesis**

#### **Hypothesis 1**

**H<sub>0</sub>**. Life stress will have no effect on physical complaints.

**H<sub>1</sub>**. Life stress will have an effect on physical complaints.

#### **Hypothesis 2**

**H<sub>0</sub>**. How overwhelmed an individual is will have no effect of physical complaints.

**H<sub>1</sub>**. How overwhelmed an individual is will have an effect of physical complaints.

#### **Hypothesis 3**

**H<sub>0</sub>**. Level of beauty concerns will have no effect on physical complaints.

**H<sub>1</sub>**. Level of beauty concerns will have an effect on physical complaints.

#### **Hypothesis 4**

**H<sub>0</sub>**. Exercise will have no effect on physical complaints.

**H<sub>1</sub>**. Exercise will have an effect on physical complaints.

#### **Hypothesis 5**

**H<sub>0</sub>**. Soft drink consumption will have no effect on physical complaints.

**H<sub>1</sub>**. Soft drink consumption will have an effect on physical complaints.

## Method

### Participants and Procedures

Participants were friends and family ( $n = 358$ ) of students in Michael Hoerger's fall 2007 PSY 211 Psychological Statistics course at Central Michigan University. Of the participants, 32 (9%) failed to complete the entire survey, and their data were dropped from the analyses, leaving a final sample of  $n = 326$  participants. The sample was comprised mainly of young, Caucasian, female participants. The survey was constructed by students in the PSY 211 class. Each of the 50 students wrote five items on topics of personal interest, and the instructor whittled the item pool down to an 87-item survey, which participants completed online. For this set of analyses, only the following variables were analyzed: physical complaints, life stress, overwhelmed, exercise, beauty concerns, and pop drinking.

### Measures

**Physical Complaints.** This variable was designed to measure the degree of somatic complaints in participants. They were asked to respond to the statement: "I frequently have physical complaints, such as muscle aches, headaches, soreness, and stomach aches, especially when under stress." Responses ranged from 1 (disagree) to 7 (agree), with higher scores indicating greater somatic complaints

**Life Stress.** This variable was designed to measure the level of stress each participant felt in their life. They were asked to respond to the question: "Compared to others, how much stress do you have in your life right now?" Responses ranged from 1 (low) to 7 (high), with higher scores indicating greater levels of life stress.

**Overwhelmed.** This variable was designed to measure how overwhelmed each participant felt. They were asked to respond to the following statement: “The course of my day-to-day activities leaves me overwhelmed.” Responses ranged from 1 (disagree) to 7 (agree), with higher scores indicating greater levels of psychosocial overwhelm.

**Beauty Concerns.** This variable was designed to measure the level of beauty concerns each participant felt they had. They were asked to respond to the following question: “How much do you worry about the way other people view your appearance?” on a scale from 0 (Never) to 4 (Sometimes) to 7 (Always), where a high score means more concern about appearance.

**Exercise.** This variable was designed to measure how often participants exercised per week. They were asked to respond to the following question, “On average, how many days per week do you exercise?” Response options ranged from 0 to 7, indicating number of days.

**Pop Drinking.** This variable was designed to measure the amount of pop consumed by participants. Participants were asked to respond to the following question, “How often do you drink pop?” on a scale from 0 (Never) to 4 (Sometimes) to 7 (Always), where a high score indicates more pop consumption.

## Results

In general, physical complaints varied throughout the sample. In order to better analyze the data, the physical complaint variable was divided into high and low groups. Scores equaling 1 to 4 were considered low, while scores equaling 5 to 7 were considered high, in terms of physical complaints. Scores equaling 4 were placed in the low score category due to the fact that a score of 4 was considered average on the ranking scale.

Life stress ( $r = .33, p < .05$ ), overwhelmed ( $r = .27, p < .05$ ), beauty concerns ( $r = .20, p < .05$ ), and pop drinking ( $r = .21, p < .05$ ) all significantly predicted level of physical complaints. However, amount of exercise did not predict amount of physical complaints,  $r = -.05, ns$ . Thus, although amount of exercise was not related to physical complaints, one's level of life stress was modestly related, and one's feelings of being overwhelmed, level of beauty concerns, and pop drinking were all slightly related. To examine the overall contribution of the three significant predictors (life stress, overwhelmed, beauty concerns, and pop drinking) in accounting for physical complaints, multiple regression was used. The results of the multiple regression analysis indicate that these three predictors accounted for a modest proportion of the variance in physical complaints,  $R^2 = .17, p < .05$ . Thus, life stress, overwhelmed, beauty concerns and pop drinking together account for 17% of the difference in overall physical complaints.

Individuals with a low amount of physical complaints ( $M = 4.4, SD = 1.4$ ) differed from individuals with high amounts of physical complaints ( $M = 5.2, SD = 1.3$ ) in terms of life stress. This difference was of medium size and statistically significant,  $d = .56, t(324) = 3.88, p < .001$ . That is, individuals with higher amounts of physical complaints also tend to have a high level of life stress.

Individuals with a low amount of physical complaints ( $M = 3.27, SD = 1.88$ ) also differed from individuals with high amounts of physical complaints ( $M = 4.10, SD = 2.03$ ) in amount of pop consumed. This difference was small and statistically significant,  $d = .42, t(324) = 2.99, p < .001$ . That is, individuals with higher amounts of physical complaints also consumed more pop.



Individuals with a low amount of physical complaints ( $M = 3.78$ ,  $SD = 1.64$ ) also differed from individuals with high amounts of physical complaints ( $M = 4.40$ ,  $SD = 1.59$ ) in overwhelm. This difference was small and statistically significant,  $d = .38$ ,  $t(324) = 3.20$ ,  $p < .05$ . That is, individuals with higher amounts of physical complaints also are more overwhelmed.

Individuals with a low amount of physical complaints ( $M = 4.14$ ,  $SD = 1.44$ ) also differed from individuals with high amounts of physical complaints ( $M = 4.69$ ,  $SD = 1.55$ ) in beauty concerns. This difference was small and statistically significant,  $d = .37$ ,  $t(324) = 3.14$ ,  $p < .05$ . That is, individuals with more beauty concerns also have more physical complaints.

Individuals with a low amount of physical complaints ( $M = 3.05$ ,  $SD = 1.88$ ) did not differ from individuals with high amounts of physical complaints ( $M = 2.66$ ,  $SD = 2.25$ ) in amount of exercise. This difference was small and not statistically significant,  $d = 0.19$ ,  $t(324) = 1.63$ ,  $ns$ . That is, individuals with a low amount of physical complaints exercised about as much as individuals with a high amount of physical complaints.

The results of the correlations and  $t$ -tests produced the same pattern of results. If a variable was determined significant based on the correlation, the  $t$ -test also proved statistical significance.

### **Discussion**

Physical, or somatic, complaints, such as muscle aches, soreness, headaches, and stomach aches are a problem for many people, and are often a concern of many doctors and psychologists. Often these somatic discomforts are related to aspects of an individual's life other than their physical health. Through research and discovery of

aspects of life that are related to physical discomfort, action can be taken in these areas to lessen physical discomfort and increase individuals' quality of life.

Stress is one of many key factors that can lead to physical problems. A study examining the stress levels of low-income urban youth and the stress' relation to somatic complaints, mainly stomach aches and headaches, discovered that youth with high levels of stress reported levels of somatic complaints 12% higher than the control sample (Reynolds et al., 2001, p. 499). In addition, a study conducted in the United Kingdom discovered that sickness related work absences cost the United Kingdom economy over 12 billion pounds (approximately 25 billion United States dollars), in which 50% of those absences were stress related (Endler & Corace, 2001, p. 686). Therefore, life stress, and how overwhelmed individuals feel were examined in this study. In addition the relationship of beauty concerns and somatic complaints was looked at, with the theory that people who rate high on beauty concerns are adding more stress to their lives than people with low beauty concerns. Along the same lines, high levels of beauty concerns can lead to serious disorders such as anorexia nervosa and bulimia nervosa. Studies have shown that while many people may not have an actual eating disorder, many are suspected to display mild forms of these disorders (Kansi, J., Wichstrom, L., & Bergman, L. R., 2005). In addition, eating disorders in any form put individuals at high risk for physical problems. Some of the more serious physical problems include hypothalamic dysfunction, osteoporosis, amenorrhea, and oligomenorrhea (Kaplan-Seidenfeld & Rickert, 2001).

Exercise serves many beneficial functions for the body by lowering health risks, increasing physical fitness and triggering the release of endorphins. A study on women

with Fibromyalgia in which the women were required to participate in aquatic training found that women that participated had better physical function, less body pain, and a better general health perception after only twelve weeks (Carus & Hakkinen, 2007). In addition, a recent study on soft drinks and metabolic syndromes found that of people who consume one or more soft drinks per day were 48% more likely to develop a metabolic syndrome or other health problem (Dhingra et al., 2007, p. 482). Therefore the final two variables studied were exercise and soda consumption.

Physical, or somatic, complaints, such as muscle aches, soreness, headaches, and stomach aches are a problem for many people and therefore are important to study. In this study it was expected that stress plays a large role in physical complaints, and in addition, exercise and soft drink consumption also are related.

This study discovered that life stress correlated the highest with somatic complaints, with a large t-value and medium effect size. This was a positive correlation, meaning the more life stress an individual had, the more somatic complaints they had. In addition how overwhelmed an individual ranked themselves was also positively correlated to somatic complaints. Finally, beauty concerns had a small, positive correlation with somatic complaints. From these positive correlations it can be concluded that stress is related to somatic complaints.

Surprisingly, the correlation between exercise and somatic complaints was not significant; therefore, we can conclude based on this study that exercise has no effect on somatic complaints. Pop drinking did, however, slightly correlate with somatic complaints; therefore, it can be concluded that the more pop an individual consumes the more somatic complaints they will have. The positive relationship between stress,

overwhelm, beauty concerns and pop drinking to physical complaints was predicted. On the other hand, the fact that exercise was not significantly related was a surprise. There is the possibility that physical complaints and exercise are in fact related at the population level; however, a relationship did not show up in this study based on the survey sample, could be due to several reasons. The wording of the question may have been misleading or caused people to misjudge how often they exercise. In addition, because the sample was surveyed and were required to self-report how often they exercise, the results may not have been as accurate as if a log had been kept of how often participants exercise. Participants also may not have been truthful and lied about how often they exercise. Finally, the results may have had too much of a basis on college students, and therefore were not an accurate prediction of the population.

This study was able to examine a large number of people on a variety of variables in a short time. The distinct relationship between stress and somatic complaints is greatly valuable to the medical and psychological world. These findings along with past findings indicate that stress reduction can be used to decrease physical discomfort caused by somatic complaints, which can increase individuals' quality of life no matter what age they are.

The main problem with the study was that it is sometimes difficult to discern if participants are providing accurate and honest data; however, with a large sample, often these individuals can be out weighed. In addition, some variables of the study may not have pertained to every participant who completed the study as it was designed by college students.

This study determined that there is in fact a relationship between stress and somatic complaints. Further studies on how exactly stress effects somatic discomfort would be of great benefit to the medical and psychological sciences. Future studies could do specific case studies or experiments to verify the results of this study. These studies could involve having participants keep a log of their somatic complaints and the stressors and activities in their life. An experiment could also be conducted by exposing one group of people to a stressful situation, while using another group as a control, and comparing the somatic complaints of the participants. In addition these studies could determine the specifics of how stress affects somatic discomfort, which could also lead to better ideas of how to reduce stress, and how overwhelmed people are. These studies would also insure that the participants selected were appropriate for the study and would insure that they receive honest and accurate data from the participants as it can be monitored better than with a survey. In addition, due to the surprising result of exercise and somatic complaints not being related, further studies may want to focus on verifying this result or determining with this result is so. An experiment could be done examining exercise. Participants could be divided into three groups. One could be required to exercise daily, another twice a week, and the third not at all. Somatic complaints could then be compared among the three groups for further information on the relationship between exercise and somatic complaints. This could also help determine whether or not the results of this study showing exercise and somatic complaints were not related were due to sampling error. Along the same lines, it would be interesting to know how pop drinking effects somatic complaints. There are a variety of studies that can be conducted

to further the research of this study. The results of this study and further studies show promise of being very useful now and in years to come.

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