Achievement Motivation and Body Competence as Predictors for Nonhypnotic Suggestibility

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ABSTRACT

The present study aims to discover relationships between suggestibility and two predictor variables identified as achievement motivation, and body consciousness. Relationships between both predictor variables and placebo susceptibility have also been established through research, but there remains a gap in the connection between these variables and suggestibility. The present study administered a survey to participants (N=103), using the Shortened Suggestibility Scale (SSS), Body Consciousness Questionnaire (BCQ), and the Achievement Motives Scale (AMS-R) as the measure of suggestibility, body consciousness, and achievement motivation respectively. It is hypothesized that motivation as measured by AMS-R will have a positive correlation with suggestibility. It is similarly hypothesized that greater Private Body Consciousness (as opposed to Public Body Consciousness) will have a positive correlation with suggestibility. It is finally hypothesized that increased body competence will have a positive correlation with suggestibility. The identified predictors were found to account for 45.7% of variability in secondary suggestibility within the collected sample, $F(4, 103)=20.652$, $p<0.001$, $R^2=.457$. The data necessary for this study was collected through self-report measures administered through Amazon Mechanical Turk (MTurk), and analysis was conducted using SPSS software.

INTRODUCTION

There has been ample research to determine which demographics are particularly susceptible to the placebo effect, as it does not have a consistent degree of effect in every population. In the findings of the aforementioned research, a connection between suggestibility and susceptibility to the placebo effect has been found (Duke, 1964). Those who can be identified as more suggestible tend to have a higher susceptibility to the placebo effect, which is a very important relationship to fixate on. To advance research and further the identification process, it is important to search for variables predicting suggestibility. Any link to suggestibility could hypothetically, through the utilization of past literature, be linked to placebo susceptibility, which is vastly important in clinical and medical fields, as it could predict the efficiency of a placebo treatment for an individual. The present study originates from this idea, searching for relationships between suggestibility and other characteristics.

Background research has been conducted into past literature, seeking to identify viable predictor variables to be tested with suggestibility. An initial search was conducted using the "big 5" personality factors, or OCEAN (openness, conscientiousness, extraversion, agreeableness, neuroticism), though there was no relationship found between these factors and suggestibility. One study rather suggests that findings of a positive relationship between neuroticism and suggestibility have been proven false (Eysenck, 1954). Research was done on correlations between negative life experience and suggestibility, however studies done on this topic suggest that negative life experience is limited as a predictor of suggestibility (McGroarty, 2013). Other analysis of previous research was conducted including the exploration of variables like depression rates, desire for control, and resiliency, but each of these have been shown to be weak candidates for predictors of suggestibility in previous literature. For the purposes of this study, the factors selected were achievement motivation, body consciousness (ranging from private body consciousness to public body consciousness), and body competence. Each variable has promising research behind them displaying relation to suggestibility.

LITERATURE REVIEW

Suggestibility

When the term suggestibility is used, it is not simply referring to whether or not someone is gullible or agreeable – it is referring to a measurable characteristic. There are two recognized types of suggestibility: primary suggestibility, and secondary suggestibility. The most comprehensive definition of the distinction between these two is given in a very early study by Hans Eysenck in 1945. It was this research that split suggestibility into two separated metrics. The first is primary suggestibility; the ideomotor kind that is highly correlated with hypnotizability. The second is secondary suggestibility, the indirect kind that is not correlated with hypnotizability (Eysenck 1945). If one possesses a greater degree of primary suggestibility, otherwise known as hypnotic suggestibility, it has been proven that they are more vulnerable to hypnosis. This early study inspired future research on both primary and secondary suggestibility, proving itself to be instrumental in the understanding of suggestibility.

The specific relationship between suggestibility and the placebo effect is explored in a study as early as 1964. The study found that placebo reactivity correlated significantly with secondary suggestibility and church attendance – yet failed to correlate with primary suggestibility (Duke, 1964). Rejecting an initial hypothesis of the study, Duke failed to validate a relationship between placebo reactivity and hypnotizibility. It is, however, notable that a significant correlation between placebo reactivity and secondary suggestibility was found. Following the initial research of John Duke, the question of the relationship between suggestibility and placebo reactivity moved on to new researchers over the decades who explored it further.

To further the understanding of the relationship between suggestibility and placebo reactivity, a recent study has examined the discrepancy between the subjective placebo response, and the physiological placebo response (Sheiner, 2015). Consistent with past literature (Duke, 1964), the study proved that suggestibility was correlated with the subjective placebo response in terms of self-report data. They also found, however that suggestibility was not correlated with

the physiological placebo response, in terms of biometric data including heart rate and blood pressure. This distinction allows a more complex understanding of the relationship between suggestibility and placebo susceptibility to be developed.

A follow-up study exploring the effects of verbal suggestion hypothesized that inducing positive expectations for an outcome could reduce pain or other discomfort (Peerdeman et al., 2015). Utilizing a drug trial consisting of an experimental group and a control group, they concluded that both verbal suggestion and imagery successfully created positive expectations in participants, but that these expectations did not affect physical sensitivity, pain relief, or physiological responses. These results are consistent with the previous study displaying that suggestibility is not correlated with a physiological placebo response (Sheiner, 2015). The results differ, however, from other studies displaying a relationship between expectations and placebo reactivity (Webb et al., 2005)

Significant results were found in a study regarding psychedelic experiences being induced via suggestibility alone (Olsen et al., 2020). In a sample that was given a placebo and told it was the psychedelic drug psilocybin, 61% of participants verbally reported some effect of the drug. Furthermore, several participants reported effects of a magnitude typically associated with high doses of psilocybin. The findings of this study align with previous literature displaying a positive relationship between suggestibility and the subjective placebo response (Sheiner, 2015).

A unique study examining the relationship between response expectations and product efficacy displays the implications of suggestibility in other contexts (Kocher, Holzmuller, 2019). When participants were marketed a product said to be more effective, despite this product being a placebo, the impact of the product was greater. When participants were marketed two products, however, said to be of equal effect – the impact of the products were equal, again despite both being placebos. These results provide support for expectation as a predictor of placebo reactivity.

Placebo Analgesia

The phenomenon of placebo analgesia occurs when the placebo effect occurs in the interest of symptom relief – a phenomenon observed primarily in drug trials. In one such trial, lateral epicondylitis was treated using a placebo saline injection, and it was found that no drug being tested could treat the condition more effectively than the saline solution (Hickner, 2021). These results display that the placebo effect can be an adequate treatment for a variety of conditions – often better than drug treatments.

Participants received varying degrees of pain stimuli in an additional study researching the negative emotional states of anxiety and fear in relation to placebo analgesia (Swider 2019). Despite equivalent electric shock potency, participants reported less pain when indicated that less pain would be invoked, and more pain when indicated that more pain would be invoked. When comparing groups, it was found that participants who were given some expectation as to the degree of pain experienced no difference in placebo analgesia from participants who were given no expectation. Notably, this study was replicated using a second group, and the results were consistent with the original study (Bajcar et al., 2020)

This relationship was reinforced in a study regarding placebo analgesia in the context of allergic reaction. (Leibowitz et al., 2019). The researchers found that participant beliefs regarding placebos moderated the effect of the open-label placebo treatment on the allergic reactions. This study displays the way in which participants' beliefs can influence treatment outcomes, again suggesting that expectations can be a significant predictor for placebo reactivity, consistent with previous literature (Kocher, Holzmuller, 2019).

A final study examining placebo analgesia observed optimism, suggestibility, empathy, and neuroticism, intending to investigate the interplay between these factors (Corsie and Colloca, 2017). When participants were told to associate a greater pain stimuli with a red cue than a green cue, they reported greater pain with a red cue despite the heat causing the pain remaining at the same level. Notably, if anxiety severity was higher or there was medical pain involved, the placebo effect was less observable. The results of this study indicate that motivation and suggestibility account for 51% of the variance in placebo responsiveness. This

relationship provides basis for motivation as a significant predictor for placebo reactivity, as well as linking it to suggestibility.

Predictor Variables

The relationship between suggestibility and the placebo response is one that is well researched and established, and there are several predictor variables that have been linked to the placebo response thus providing a logical basis to hypothesize a relationship with suggestibility as well. Though there have been many studies focused in this area, a preliminary evaluation suggests that two factors display the strongest relationships: achievement motivation, and private body consciousness.

Motivation

In the case of motivation, an initial study explores the relationship between motivation and the placebo response. In this particular study it was found that, consistent with hypotheses, participants that were more highly motivated demonstrated greater placebo responses (Aigner 2014). The correlation between motivation and the placebo response was found to be mediated by attention, which has implications for the other predictor variable, private body consciousness. Body consciousness is measured using a spectrum from private body consciousness to public body consciousness, with the measurable quality being where one's attention lies – inside or outside of one's body. The findings of this study, however, outline the way in which motivation can impact the placebo response (Aigner 2014).

Another study explores a similar relationship, focusing on motivation as a predictor for the placebo response (Geers et al. 2005). This study hypothesized that the placebo effect is most likely to occur when it serves to fulfil a goal set by the participant. Across five experiments, support was provided for the hypothesis, and the moderating effect was shown to occur for both positive and negative goals. This study has implications in terms of goal setting and motivation, but clearly seen through these two studies is the relationship between motivation and the placebo response.

A study that expands upon this relationship explores placebo therapy with predictor variables including spirituality, optimism, expectancy, and attitudes/beliefs to complimentary medicine (Hyland et al., 2007). The results of this study display that, in tandem with subject expectations, degree of engagement also determines the placebo response. They concluded that the placebo response depends on the degree of concordance between the type of therapy used and the participants personality. These findings build upon the relationship discovered between personal goalsetting and placebo reactivity (Geers et al., 2005), as degree of concordance can be asserted as an aspect of motivation or goal-setting behavior.

An additional study continues to build on the relationship between motivation and the placebo response within the context of smoking cessation (Webb et al., 2005). Despite the same information being presented regarding smoking cessation, participants receiving a more personalized smoking cessation booklet were hypothesized to yield the greatest outcomes in quitting smoking. The results of this study provided support for the hypothesis, also finding that the effect of the booklet was moderated by participants' expectations regarding the personalization. In this study, the placebo treatment is represented by the personalization in the booklet. Despite containing the same exact information regarding smoking cessation, the personalization of the booklet seemed to make a difference in how effective the information was. This study exemplifies the relationship between motivation and the placebo response, further exhibiting the relationship between subject expectations and placebo reactivity (Hyland et al., 2007).

Literature also shows motivation as a predictor for suggestibility itself (Roebers, 2005). The results of studies in this area suggest that participants influenced to have a greater degree of motivation were less likely to be swayed by incorrect suggestions in the context of recall performance. This displays a negative relationship between motivation and suggestibility, which is not consistent with previous literature (Aigner, 2014).

Body Consciousness

Private body consciousness is identified in literature as attention focused on one's own body, including feelings of comfort/discomfort, internal temperature, or thought processes (Miller et

al., 1981). Alternatively, public body consciousness is identified as attention focused on incoming sensory information including one's surroundings. Body competence is identified as one's self-perceived physical ability.

Early literature regarding body consciousness explores relationships between private self-consciousness and placebo susceptibility (Brockner 1983). It was found that insomniacs with a greater private self-consciousness were more susceptible to a reverse placebo effect, while insomniacs with a greater public self-consciousness were more susceptible to a normal placebo effect. A reverse placebo effect occurs when a subject takes a placebo, and experiences effects opposite to what they are told to expect. In the case of this study, when given a placebo and told it would make them drowsy, insomniacs felt more awake. Similarly, when given a placebo and told it would make them awake, insomniacs felt more drowsy. This research begins to establish a relationship between body consciousness and placebo-susceptibility.

A drug trial seeking to further establish this relationship evaluates placebo side effects (nocebo effects) of a medication (Heller et al., 2022). The researchers measured beliefs about medication, perceived sensitivity to medicines, negative affectivity, somatization, and body awareness. The study concluded that participants were more likely to attribute symptoms to side effects of the drug if they had negative beliefs regarding pharmaceuticals, stronger concerns regarding the drug, greater negative affectivity, or greater body awareness. This provides insight into body awareness as a predictor for placebo reactivity in the context of drug trials.

Self-focused attention has been analyzed as a mediator for the experience of intoxication in literature (Zuber et al., 1988). To measure self-focused attention, the researchers used measures of private body consciousness, private self-consciousness, and self-awareness. It was hypothesized that greater self-focused attention would amplify reported bodily feelings of intoxication following alcohol intake, and moreover that these effects would be counteracted after placebo treatment. Results of the study display that self-awareness and private body consciousness correlated positively with the experience of the bodily effects of intoxication.

Furthermore, they found that this relationship was moderated by the amount of experience with alcohol that the participant had.

In additional research evaluating awareness of bodily states and suggestibility, researchers hypothesized that self-directed attention would cause increased internal awareness and thus reduce suggestibility effects (Scheier et al., 1979). In this study, participants were asked to report the strength of a taste after being given an expectation by researchers. Individuals who tested higher in private self-consciousness were less affected by the expectancy manipulation, and therefore more accurate in reporting their sense of taste than individuals low in private self-consciousness. This result is significant in determining the relationship between private self-consciousness and suggestibility.

Conclusion

Ultimately, the placebo effect is a frequently studied phenomenon due to its significance in medicinal treatment and human behavior studies. There have been several variables identified to positively and significantly correlate with placebo reactivity, including secondary suggestibility (Duke 1954), private body consciousness (Brockner 1983), and achievement motivation (Aigner 2014). Although these studies have displayed the relationships between the aforementioned variables and placebo reactivity, there is a gap in research displaying correlation between the variables themselves. It can be logically hypothesized that such relationships may exist due to the observed positive relationships with placebo reactivity consistent across each variable. Though the most prominent implications of the proposed study are within the arena of placebo reactivity, this is a highly difficult variable to measure, especially considering the available resources and experimental population. For this reason, the aim of this study is to find a positive relationship between private body consciousness and interrogative suggestibility, as well as achievement motivation and interrogative suggestibility. Due to the relationship observed between suggestibility and the placebo response, finding these relationships would be significant in the fields of medicine and psychology.

METHOD

Design

This study utilizes a multivariate linear regression model to measure the degree of variability in suggestibility that can be predicted by achievement motivation and body consciousness. The criterion variable in this study is identified as suggestibility, while the predictor variables are achievement motivation and body consciousness. This study seeks to establish an association between the predictors and the criterion variable.

Participants

This study has a total of 103 participants (N=103). Out of this sample, 49 were female (47.6%) and 54 were male (52.4%) (Appendix A). Furthermore, it was found that 84 participants were Caucasian (81.6%), 3 were African American (2.9%), 2 were American Indian or Alaskan Native (1.9%), 11 were Asian (10.7%), 1 was Latino/Hispanic (1.0%), and 2 were of another ethnicity (1.9%). In terms of marital status, it was found that 81 participants were married (78.6%), 2 were divorced (1.9%), and 20 were never married (19.4%). Additionally, it was found that 6 participants had a high school education or equivalent (5.8%), 6 participants had some college (5.8%), 4 participants had associate degrees (3.9%), 66 participants had bachelor's degrees (64.1%), and 21 participants had graduate degrees (20.4%). In terms of age at survey completion, there was a minimum value of 22 and a maximum value of 70 (M=34.24, SD=10.04) (Appendix B). A full frequency breakdown is reported in Appendix A.

Descriptive statistics were also generated for each criterion and predictor variable. The criterion variable, suggestibility, was measured using the Shortened Suggestibility Scale (M=70.28, SD=16.36). The predictor variables, as measured by the Achievement Motives Scale Reduced and Body Consciousness Questionnaire, are achievement motivation (M=36.42, SD=5.47), private body consciousness (M=19.24, SD=3.02), public body consciousness (M=22.86, SD=3.34), and body competence (M=14.97, SD=2.85). All descriptive statistics are reported in Appendix B.

Materials

SPSS software was used for all data analysis including frequencies, descriptive statistics, and multivariate linear regression. Amazon Mechanical Turk (MTurk) crowdsourcing services were utilized to obtain a sample (N=103), and all responses were automatically moved into Qualtrics, which was later used to export data to SPSS for analysis.

Short Suggestibility Scale

The Short Suggestibility Scale (Kotov et al., 2004) is a 21-item measure created with the intention to gauge secondary (non-hypnotic) suggestibility in participants. The Short Suggestibility Scale is a reduced version of the Multidimensional Iowa Suggestibility Scale (Kotov et al., 2004), which is made up of 95-items. Within the survey, each question is answered using a 5-choice Likert scale, ranging from 1 (not at all or very slightly) to 5 (a lot). The Short Suggestibility Scale consists of 5 subscales involving: 1) consumer suggestibility, 2) sensation contagion, 3) physiological reactivity, 4) peer conformity, 5) persuadability. The participants in the present study will be asked questions within these 5 subscales as they relate to their own thoughts and behavior. An example of an item from the Short Suggestibility Scale is: “I am easily influenced by other people’s opinions”. Despite utilizing subscales, The Short Suggestibility Scale was designed with the intention of generating a single total suggestibility score but taking a sum of each question. There are no reverse scored items. The Short Suggestibility Scale correlated .93 or above with the general factor score and the total suggestibility index (Kotov et al., 2004).

Achievement Motives Scale Reduced

The Achievement Motives Scale Reduced (Lang et al., 2006) is a 10-item measure created with the intention to gauge achievement motivation. The Achievement Motives Scale Reduced is a shortened version of the Achievement Motives Scale (Lang et al., 2006), that contains 30-items. Within the survey, each question is answered using a 5-choice Likert scale, ranging from 1 (strongly disagree) to 5(strongly agree). The Achievement Motives Scale Reduced consists of two subscales including: 1) fear of failure, and 2) hope of success. For

the purposes of this study, the Achievement Motives Scale Reduced will combine both subscales into a total "Achievement Motivation" score for analysis. An example of an item from the Achievement Motives Scale Reduced is: "I like situations, in which I can find out how capable I am". This score is calculated by taking a sum of each item response, with no reverse scoring. The Achievement Motives Scale Reduced provides adequate reliability, lower inter-scale correlations, and criterion-related validity with respect to typical criteria of achievement-related behavior (Lang et al., 2006)

Body Consciousness Questionnaire

The Body Consciousness Questionnaire (Miller et al., 1981) is a 15-item measure created with the intention to gauge body consciousness on a scale from public body consciousness to private body consciousness. Within the survey, each question is answered using a 5-choice Liker scale, ranging from 0 (extremely uncharacteristic) to 4 (extremely characteristic). The Body Consciousness Questionnaire consists of 3 subscales including: 1) private body consciousness, 2) public body consciousness, and 3) body competence. For the purposes of this study, each of these subscales are regarded as their own independent score and are not added to calculate a summative score. An example item of the Body Consciousness Questionnaire is: "I am sensitive to internal bodily tensions". Each subscale variable (private body consciousness, public body consciousness, body competence) is regarded as a predictor in the analysis pertaining to this study. The Body Consciousness Questionnaire is widely used in literature and has proven its reliability and validity (Miller et al., 1981)

Procedure

Each participant completed a single survey requiring no more than 15 minutes to complete. Demographic information was solicited from consenting participants in the early stages of the survey, as well as a simple question on previous hypnosis experience. Following the demographic sheet, participants answered a survey totaling 46-items with three scales measuring suggestibility (MISS), achievement motivation (AMS-R), and body consciousness (BCQ).

Participants were recruited using the MTurk crowdsourcing platform, as funded by Bryant University. A comprehensive consent form was shown as the initial screen before the questionnaire was administered. This consent form fully discloses the intent of the survey to gather personal information from each participant regarding suggestibility, achievement motivation, and body consciousness. The consent form also contains information on anonymity and confidentiality, both of which are ensured. All responses were kept completely anonymous and only used in the form of data. No form of individual identification was solicited within the survey. Individual responses were not in any way shared, to ensure full confidentiality and privacy. At any time during the survey if any given participant decided to withdraw from the survey for any reason, they were able to do so without consequence. Each participant was also given the initial option to refuse participation, by indicating that they do not consent at the beginning of the survey. Results from this study are reported in the form of group-level data, but no individual identification is provided. Anonymity and confidentiality protocols were strictly followed as to achieve a fair and ethical process for all participants.

Statistical Analysis

Several analyses were conducted using SPSS software. For participant data, frequency tables were created along with descriptive statistics. Several multivariate linear regressions were also conducted using SPSS.

RESULTS

It was hypothesized that achievement motivation, private body consciousness, and body competence would be positively associated with suggestibility. It was also hypothesized that public body consciousness would be negatively associated with suggestibility. Collectively, these four variables explained 45.7% of the variance in suggestibility, $F(4, 103)=20.652$, $p<0.001$, $R^2=.457$. Standardized beta coefficients are reported in Table 2 below showing that achievement motivation and body competence both significantly predicted suggestibility in a positive direction, while private body consciousness and public body consciousness both were not significant as predictors.

Table1. Coefficient estimates for regression model of Suggestibility

Predictors	Standardized Beta and Significance	
	Standardized β	p
AMSR	.328	<.001***
BCQPrivate	-.175	.065
BCQPublic	-.102	.340
BCQ_BC	.647	<.001***

Note: ***p< .001

Taking this into consideration, an additional analysis was performed. It was hypothesized that achievement motivation and body competence would be positively associated with

suggestibility. Collectively, these two variables explained 42.2% of the variance in suggestibility, $F(2, 103)=36.42$, $p<0.001$, $R^2=.422$.

DISCUSSION

The results of the present study partially support the hypothesis that achievement motivation, private body consciousness, public body consciousness, and body competence would be significant predictors of secondary suggestibility. Evaluating coefficients reveals that only achievement motivation (as measured by AMS-R) and body competence (as measured by BCQ) as significant predictors of suggestibility (measured by SSS), displaying a value of $p<.001$. Private body consciousness and public body consciousness were both insignificant as predictors, thus or partially providing support for the original hypothesis of the present study.

These results present some inconsistencies with the previous literature. In the case of private body consciousness, it was hypothesized to be a significant predictor of suggestibility due to the abundance of research supporting it as a predictor for placebo susceptibility (Brockner, 1983). Even studies directly observing the placebo effect have displayed that private body consciousness has correlated positively with placebo reactivity (Zuber et al., 1988) which proposes a possible relationship with suggestibility as well. Past literature evaluating the relationship between private body consciousness and suggestibility also displays a significant relationship between the two variables, however the relationship that is observed is negative (Scheier et al., 1979). Despite the varying direction of the relationship in previous literature, there is a commonality that private body consciousness significantly affects suggestibility. Therefore, it is an inconsistency that the present study was unable to identify private/public body consciousness as a significant predictor of suggestibility. It is likely that this discrepant result is the effect of a Type 1 error, perhaps due to the relatively small sample used in this study. A replication of this study might utilize a larger sample and observe that private/public body consciousness is a significant predictor of suggestibility, as suggested by previous literature. This iteration of the study, however, was unable to produce that result.

The result of body competence not only as a significant predictor of suggestibility, but as the predictor with the greatest standardized beta (.647), is a noteworthy finding. Body competence was a subscale of the Body Consciousness Questionnaire (Miller et al., 1981), however it is rarely used in analysis as its own variable. For this reason, there is little previous

literature using body competence, whereas there is lots of previous literature regarding public and private body consciousness.

The results regarding achievement motivation are mostly consistent with previous literature on the topic. Achievement motivation has been proven to have a relationship with placebo reactivity in multiple contexts including pheromones (Aigner, 2014), goal setting (Geers et al., 2005), and therapy (Hyland et al., 2007). This established relationship suggests a connection to suggestibility as well. In fact, in studies focused on achievement motivation as a predictor for suggestibility, a relationship between the two was discovered, however they found that individuals scoring higher in achievement motivation actually were less suggestible (Roebers, 2005), contrary to the findings of this study.

There are at least two potential limitations concerning the results of this study. A first limitation concerns the sampling process. Despite initial intentions to utilize Qualtrics Curated Recruitment, Amazon Mechanical Turk (MTurk) sampling was utilized for the purposes of this study. MTurk provides more of a convenience sample than Qualtrics does, thus our demographic data is skewed as we have a population that is 81.6% Caucasian, 78.6% married, and 88.4% college educated (Appendix A). This sampling method is something to consider when it comes to the external validity of this study, as the results of the study are certainly less generalizable to other situations, populations, and settings when the sample is not diverse.

A second potential limitation also concerns the demographics of this study, particularly age. It has been shown in previous literature that body competence has an inverse relationship with age, in that as age increases, body competence decreases (Miller et al., 1981). In the present study, the sample was a somewhat younger age demographic (M=34.34 SD=10.04). This is reflected in our body competence scores (M=14.97 SD=2.85). With a minimum score of 5 and a maximum score of 20, we see that our average body competence score is quite high. With this being our strongest predictor of suggestibility, these descriptive statistics propose several questions including whether these results would be different if the present study had a more diverse age range.

Despite these limitations, these results have several theoretical implications. The most prevalent implication is that of placebo research. The relationship between secondary suggestibility and placebo susceptibility was observed over half a century ago (Duke, 1964), and yet extensions of this research are limited. In finding that achievement motivation and body competence are significant predictors for secondary suggestibility, this tentatively suggests a relationship between these predictors and placebo reactivity as well. Developing a predictive profile for placebo reactivity could be incredibly beneficial in psychological and medical settings. The placebo effect is an incredibly real and powerful phenomenon that is capable of alleviating symptoms so frequently that drugs are tested against a placebo to test if they are effective to a significant degree. While this does not necessarily mean that placebos are effective across conditions, it does mean that, unless a drug has the intended effect as a result of its chemical makeup, a placebo will either outperform the drug or perform similarly, rendering the drug useless. If a profile could be generated via self-report data or otherwise observable data on predictors that could predict whether or not a placebo would be effective, this could offer significant treatment guidance. The other implication of this is research. In drug trials, knowing an individual's predicted placebo susceptibility may help to identify the true effect of new drugs in comparison to a placebo.

In line with the implications of the present study, the results suggest that future research may be promising in the area of suggestibility or the placebo effect. There is a logical basis to hypothesize that achievement motivation and body competence are predictors of placebo reactivity with suggestibility as a mediator. This research would require significant resources and a larger sample but could prove advantageous in clinical fields. In terms of other future research, more predictors should be tested for suggestibility in order to develop a more complex predictive profile – later to be tested with placebo reactivity as well.

The present research, therefore, contributes to a growing body of knowledge regarding suggestibility and human behavior. The results of this study have significant implications in placebo research that warrant further research. Aside from these implications, however, this study has identified achievement motivation and body competence as significant and strong

positive predictors of secondary suggestibility, accounting for 42.2% of variability in the criterion variable. Results of this magnitude create new avenues for research in the area, and propose new ideas in the study of human behavior and psychology.

APPENDICES

Appendix A – Frequency Data

Table2. Gender Distribution

	N	%
Male	54	52.4%
Female	49	47.6%

Table3. Ethnicity Distribution

	N	%
Caucasian	84	81.6%
AA	3	2.9%
AI or AN	2	1.9%
Asian	11	10.7%
Latino/Hispanic	1	1.0%
Other	2	1.9%

Table4. Marital Status Distribution

	N	%
Married	81	78.6%
Divorced	2	1.9%
Never Married	20	19.4%

Table5. Education Distribution

	N	%
HS or Equiv	6	5.8%
Some College	6	5.8%
Ass. Degrees	4	3.9%
College	66	64.1%
Grad	21	20.4%

Table6. Employment Distribution

	N	%
Employed 1-39	38	36.9%
Employed 40+	59	57.3%
Unemployed-l	1	1.0%
Unemployed-nl	1	1.0%
Retired	2	1.9%
Student	2	1.9%

Table7. Hypnosis Distribution

	N	%
Yes	51	49.5%
No	52	50.5%

Appendix B – Descriptive Statistics

Table8. Descriptive statistics for quantitative data

Variables	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Age	103	22.00	70.00	34.2427	10.04155
MISS	103	31.00	105.00	70.2816	16.36077
AMSR	103	22.00	50.00	36.4175	5.47458
BCQPrivate	103	11.00	25.00	19.2427	3.02106
BCQPublic	103	16.00	30.00	22.8641	3.34327
BCQ_BC	103	5.00	20.00	14.9709	2.84728
Valid N (listwise)	103				

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