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Focus and Scope
The articles that appear in NSPB represent the work of students from graduate psychology departments. Published work includes theory, research, literature reviews, and commentaries on the field. NSPB considers articles from all schools of thought on all topics relevant to psychology. NSPB may be particularly attractive to authors whose work does not fit the missions of larger psychology journals, and those looking to gain exposure to academic publishing. NSPB prides itself on publishing the early work of new and budding scholars.

Special Thanks
To Village Copier for printing this issue.

The New School Psychology Bulletin, Volume 14, Number 1

Table of Contents

Acknowledgements

There were so many people who helped contribute to our first issue as editors of the NSPB. First, we would like to thank our authors for continuing to submit to the journal, and providing us with the fascinating pieces that culminated in this issue. We would also like to thank our editorial board members for their thoughtful and thorough reviews. We are thankful to our readers as well, for their academic curiosity and consumption of the NSPB is what keeps us relevant. We also are grateful for the continued support of the New School Psychology Department in general, and Janiera Warren in particular. Similarly, we thank Howard Steele for serving as our faculty advisor. Former NSPB editors Ryan Tellalian and Clinton Merck also provided us with guidance and valuable advice. We appreciate all their help. This journal would also not be possible without the essential contributions of our Layout Editor, Alyson Aladro. We are grateful for Alyson's continued input to the Bulletin over the years, and eye for design and attention to detail. We hope you enjoy this issue she has meticulously helped us put together.

Letter from the Editors

Spring 2017

Dear Readers,

It is with pleasure that we share our first issue of the New School Psychology Bulletin (NSPB) as its new editors with you. It is something that would not have come to fruition without the fascinating articles by our authors, exemplary suggestions of our peer reviewers, and, as always, much appreciated contributions of our layout editor.

We took over as editors in August 2016, and have been fortunate enough to receive numerous intelligent, well-written articles to review since then. This issue includes pieces describing studies on the relationship between motivation, self-efficacy and a weight-loss intervention; a new measure of harsh parenting behavior; and the relationship between racial discrimination, expectations for education success and academic performance. It also includes a review of what contributes to developing memories of alien abduction. These articles all add to and help move forward their respective realms of psychology, ranging from health psychology to cognitive psychology. Because of this, and the somewhat unclear future academic research has in the current political climate, the theme of this issue is progress. As students of psychology, we know there is always more research to be done, and these authors' work exemplifies this. It is all fascinating research and work the authors should be proud of.

The NSPB is one of two journals in the country run by and for psychology graduate students. This is something we will continue to do for the foreseeable future, regardless of the political climate (we encourage any graduate student in psychology reading this to submit your work to us). We hope you enjoy this issue, and appreciate our authors' contributions as much as we do.

Jessica Engelbrecht, Mariah HallBilsback, & Emily Maple
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Motivation, Self-efficacy and Weight Loss in a Randomized Controlled Weight Loss Intervention

Alyssa Singer
Yeshiva University

Charles Swencionis
Yeshiva University

Christopher Cimino
Yeshiva University

Research on the relationship between motivation, dieting and exercise self-efficacy, and weight loss has produced varied and inconsistent findings. This study aimed to explore and clarify the relationship between these constructs. This study evaluated 429 participants within a larger randomized controlled trial (RCT). Participants were randomized into three groups of progressive, increasing intensity: workbook only, computer intervention and computer intervention plus staff. Weight and height were collected at baseline, six months, and twelve months. We hypothesized that body mass index (BMI) would change based on motivation and self-efficacy regardless of group assignment. Findings suggest initial self-reported motivation to engage in healthy eating and exercise behaviors is less related to weight loss than is engagement with supportive staff. It is unclear how diet and physical activity self-efficacy fluctuated throughout the study; further evaluation may be necessary to utilize motivation and self-efficacy to enhance weight loss.

Over a third of American adults are now obese (Ogden, Carroll, Fryar, & Flegal, 2015). Due to the health consequences related to obesity, it may be necessary for obese individuals to lose weight. In a recent publication, Bray (2004) implicated obesity in a plethora of health conditions including sleep apnea, osteoarthritis, Type 2 diabetes mellitus, cardiovascular disease, liver abnormalities, gallbladder disease and cancer, and extending to deleterious psychological effects, particularly health related quality of life. Given the large-scale health concern of obesity, effective weight loss programs are highly sought after by physicians and governmental agencies (Wing & Phelan, 2005).

Predicting individuals who can be successful in a weight loss program could be helpful for physicians, agencies, and weight loss interventions. In a review, Wing and Phelan asserted that 20% of overweight individuals successfully lose and maintain a minimum of 10% of their initial body weight (2005). This leaves a significant majority who are not successfully losing or maintaining medically necessitated weight loss. Programs can then be formulated based on these factors to enhance weight loss in those who would not be successful in currently available weight loss programs (Teixeira, Going, Sardinha & Lohman, 2005). While it is unclear which factors directly impact success, Webber, Gabriele, Tate and Dignan (2010) targeted weight loss motivation and substantiated the idea that a motivation-enhanced weight loss program, where intervention groups were led in a motivational interviewing style, was predictive of significantly increased weight loss.

Motivational interviewing (MI), a counseling style developed by Miller and Rollnick (2012), works to elicit internal motivation by raising and resolving ambivalence and discrepancies. In a review by Rubak, Sandbæk, Lauritzen, and Christensen (2005), MI was related to decreases in both physiological and psychological disease symptoms. MI utilizes the stages of change model, which separates individuals into stages based on their readiness for change (Center for Substance Abuse

Corresponding author:
Alyssa Singer, alyssasinger@gmail.com

Treatment, 1999). The trans-theoretical model, a conceptual model for categorizing individuals based on their readiness to change any behavior, is closely related to MI (Miller & Rollnick, 2009). Stages include precontemplation, contemplation, preparation, action and maintenance (Center for Substance Abuse Treatment, 1999). MI provides differing approaches that are utilized based on an individual's stage of change (Miller & Rollnick, 2009). The model recognizes that change can only occur when an individual is at the appropriate level of readiness; for example, individuals in the stage of precontemplation cannot be expected to make behavioral changes. In this study, while we will not utilize the specific categorizations of the stages of change, we will consider self-reported motivation to indicate an individual's overall readiness and willingness for change. Motivation and self-efficacy, as described prior, will be evaluated and discussed in tandem.

Individually tailored computer guided interventions (CGI) are beginning to be utilized for weight loss in obese populations, and are shown to be efficacious in improving nutrition and increasing physical activity (Vandelanotte, De Bourdeaudhuij, Sallis, Spittaels, & Brug, 2005). These results however, are not uniformly found; other studies have found inconclusive results, while others found that CGI was less efficacious than in-person programs (Harvey-Berino, Pintauro, & Gold, 2002; Norman & Zabinski, 2007).

Self-efficacy theory posits that an individual's expectation of their own ability to be efficacious in an endeavor will affect the effort put out and the eventual outcome (Bandura, 1977). Self-efficacy, then, is the belief and confidence in one's ability to carry through with steps toward a goal and to implement the changes necessary to achieve that end (Bandura, 1977; Elfhag & Rössner, 2005). Therefore, some of the keys to weight loss success are thought to be motivation and self-efficacy, which in this study we will use synonymously (Bandura, 1977; Elfhag & Rössner, 2005). If motivation is in fact a predictive factor for some, programs may look to include aspects of motivational interviewing and other motivational enhancers for the individuals who may benefit.

A number of studies looking at the relationship between motivation, self-efficacy, and weight loss have produced inconsistent results. Linde, Rothman, Baldwin, and Jeffery (2006) found that diet self-efficacy did predict some weight loss, and Teixeira and colleagues (2004) found that self-motivation was a significant predictor of short-term weight loss. Whereas, Martin, Dutton, and Brantley (2004) found that higher self-efficacy scores at the outset were negatively related to weight loss in a female African American sample. In some studies, no association between baseline motivation and self-efficacy, and weight loss was found (Byrne, Barry, & Petry, 2012; Elfhag & Rössner, 2005; Fontaine & Cheskin, 1997). The disparate findings in the research are the primary rationale for the present study. Other studies have attempted to resolve these differences but a number of limitations arose that will be described later in this paper; however as of yet these have still not been thoroughly addressed in a study.

Successful weight loss is often defined as the ability to purposefully lose ten percent of body weight and maintain the lost weight over the span of one year (Wing & Phelan, 2005). Yet, many of the studies examining the relationship between weight loss and self-efficacy only extend between ten weeks to six months (Bernier & Avard, 1986; Fontaine & Cheskin, 1997; Jeffery et al., 1984; Linde et al., 2006; Martin et al., 2004; Teixeira et al., 2004; Webber, Gabriele, Tate, & Dignan, 2010). Warziski, Sereika, Styn, Music, & Burke (2008) conducted the longest study to examine these two constructs, over 18 months. A shorter study time frame may result in loss of the variation of weight loss over time and all individuals may inappropriately be recorded with high or low weight loss. Overall, few studies have looked at motivation or self-efficacy and its longer-term effects on weight loss, which will be explored in the present study.

Furthermore, studies have not looked at the relationship between these constructs within the context of three weight loss groups of varying intensities. Most previous studies consisted of one group of individuals following similar dietary or physical activity directions (Byrne et al., 2012; Fontaine & Cheskin, 1997; Linde et al., 2006; Martin et al., 2004; Teixeira et al., 2004; Warziski et al., 2008). Martin, O'Neil, and Binks (2002) examined motivational predictors of weight loss in a study

containing two groups; one group followed a low calorie diet, the other followed a very low calorie diet. The very low calorie diet was assigned only to those with a BMI greater than 30 (Martin et al). Calories were restricted to 800 per day and shifted from nutritional supplements to non-supplement food across three stages totaling roughly 30 weeks (the three stages were allowed to vary in length; the standard expectation was 30 weeks; Martin et al.). It is concerning that 800 calories is far too few calories for an individual daily, and while it will result in rapid weight loss in obese individuals, weight regain is common (National Institutes of Health, 2012).

In another study, Webber and colleagues (2010) randomized participants to either a standard or motivational weight loss program. Participants were randomized to either the standard or motivational track. The program began with the two groups convening separately for a two-hour in-person group meeting; the study groups met separately for a second group meeting four weeks later. The standard group reviewed weight loss basics, monitoring and the importance of diet and exercise in the first group meeting. The motivational group was led using a motivational interviewing style, and reviewed the content covered in the standard group in addition to the pros and cons of weight loss and proper goal-setting. Participants in the motivational interviewing group set a goal to work on over the following four weeks. The second group meetings four weeks later differed in content across study groups: the standard group reviewed interpretation of nutrition facts and the benefits of consuming whole grains; the motivational interviewing group focused primarily on goals, proper goal-setting techniques, and personal accomplishments. The researchers found that baseline motivation was not predictive of weight loss in the motivational group, but was for those in the standard group. Neither of these studies capture motivation or self-efficacy as predictors of weight loss across groups of varying program intensity and levels of staff monitoring and support, although Martin and colleagues (2002) did have two levels of restriction. The present study takes level of engagement with the program, by attending group and engaging with staff, into account in the weight loss program. It seeks to clarify the relation to baseline motivation and ultimate weight loss by looking at groups of individuals, some who were minimally engaged and solely utilizing a weight loss workbook, others who engaged with a computer guided intervention solely, and lastly others who were provided staff support in addition to the computer guided intervention.

One of the difficulties in assessing constructs that are not easily captured involves choosing accurate measures. Many studies relating self-efficacy and weight loss have utilized just one measure of self-efficacy (Fontaine & Cheskin, 1997; Linde et al., 2006; P. D. Martin et al., 2004; Teixeira et al., 2004; Warziski et al., 2008). Diet and exercise self-efficacy seem to be two disparate concepts at face value. In fact, Byrne and colleagues (2012) examined the two self-efficacies independent of one another and found that they have differential effects; in their sample, change in exercise self-efficacy was predictive of weight loss, while diet self-efficacy was not. Still, few have examined dietary and exercise self-efficacy individually (Byrne et al., 2012; Linde et al., 2006; P. D. Martin et al., 2004).

We employed two independent measures of motivation and self-efficacy in an effort to capture its many facets. The first focuses on beliefs of efficacy to engage in and maintain certain dieting behaviors. The other primarily focuses on motivation to engage in various aspects of a dieting program and commitment to changes in food intake. As described earlier in this paper, there is considerable variability in the reports of a relationship between these two constructs in previous studies (Byrne, Barry, & Petry, 2012; Elfhag & Rössner, 2005; Fontaine & Cheskin, 1997; Linde et al., 2006; P. D. Martin et al., 2004; Teixeira et al., 2004). Potentially, the measures utilized could provide a possible explanation for lack of association between self-efficacy and weight loss in those studies that did not find a relationship; because of this, we included the two comprehensive surveys to assess diet motivation and self-efficacy described previously. Additionally, we included a separate measure of exercise self-efficacy. In this way we hoped to adequately touch upon the complexity of self-efficacy as it pertains to weight loss programs.

The present study seeks to clarify the relationship between motivation and self-efficacy, and weight loss program outcomes, using a variety of different

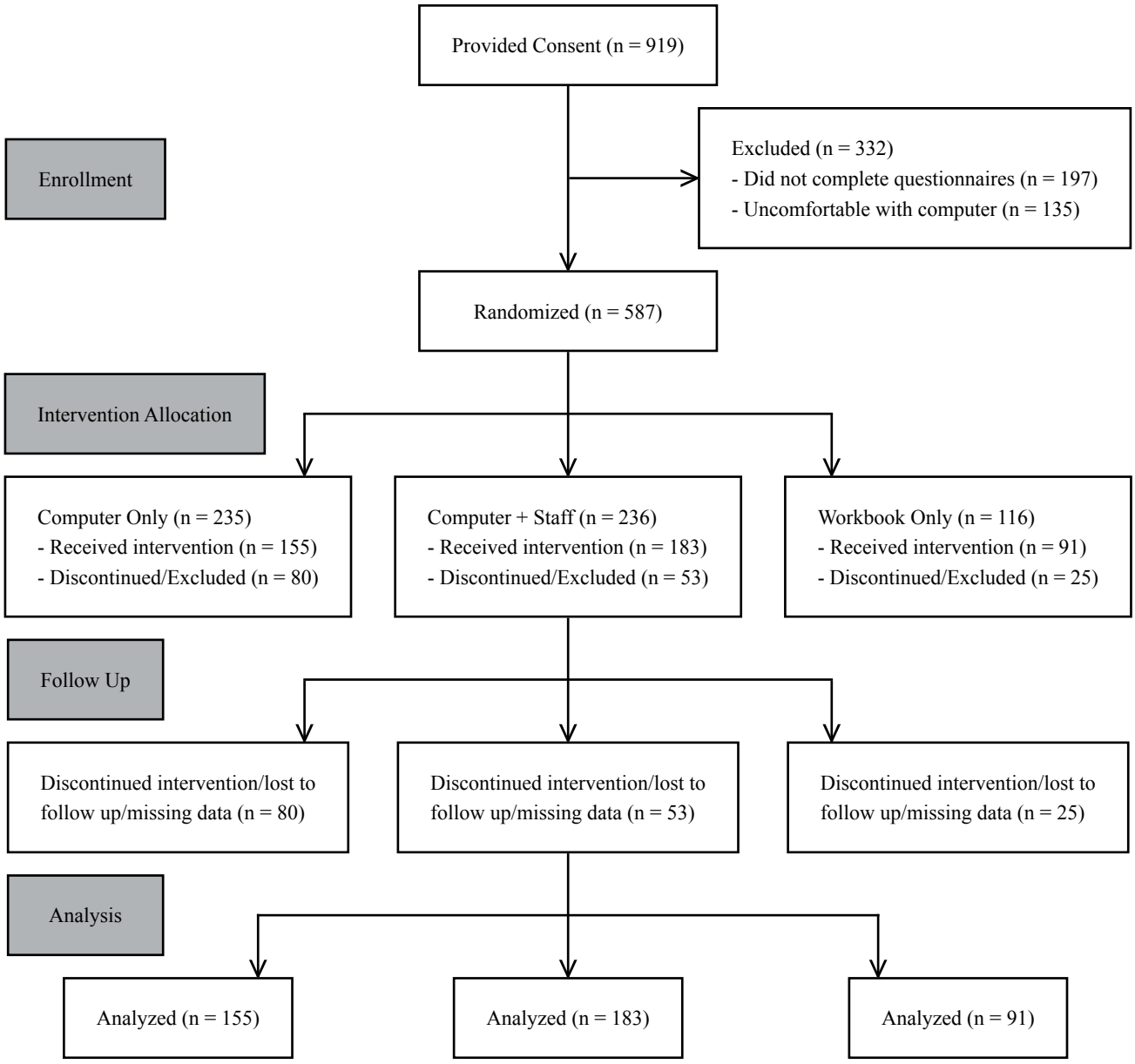

Figure 1. Participant flow diagram

instruments to measure these constructs over an extended span of twelve months. It further seeks to clarify the impact of motivation level relative to program intensity, particularly between CGI and CGI with additional staff support. More specifically, dieting readiness and exercise readiness were jointly assessed to determine the relationship between motivation, self-efficacy, and ultimate weight loss program success. It was hypothesized that higher levels of overall motivation and self-efficacy would predict greater weight loss at the close of the study, irrespective of group assignment.

Method

Participants

Participants were recruited from a Health Maintenance Organization (HMO), a part of the Community Health Plan of Long Island Jewish Medical Center. Study information was disseminated to HMO members, and was circulated within the community through flyers and newspapers.

Eligibility criteria included a BMI greater than 25, or a BMI greater than 24 with one cardiovascular risk factor (a BMI greater than 25 is considered overweight, greater than 30 obese, and greater than 35 severely obese). Inclusion criteria also included an agreement to follow study protocol, including payment of an $100 refundable deposit. Exclusion criteria were intention to move beyond a commutable distance within the next year, medical conditions that prohibited inclusion, and disagreement to follow study protocol.

One thousand five hundred and sixty individuals were initially recruited, 919 individuals provided informed consent approved by Albert Einstein College of Medicine's Institutional Review Board subsequent to a group orientation, and 722 completed baseline questionnaires on a computer. Of 588 participants randomized to the larger study (235 participants to CGI only, 236 participants to CGI and clinical staff support, and 116 to workbook only), 429 participants' data were analyzed in the present study. One hundred and fifty nine participants were excluded from analyses due to attrition. Of those included, remaining participants were 155 participants in the CGI only group, 183 participants in CGI and clinical staff support, and 91 in workbook only, which was the control group. Figure 1 depicts participant flow through the study across group assignment.

Materials

Weight. Weight and height were measured at baseline; weight was measured again at three, six, nine, and twelve months. Weight was measured while clothed, but without shoes on a balance beam scale. Body mass index (BMI) was calculated using participants weight and height with the standard formula, weight in pounds/[height in inches]2 x 703. Change in BMI was calculated by subtracting baseline BMI from BMI at six and twelve months.

Motivation and Self-Efficacy. Motivation and self-efficacy, as measured by the Dieting Readiness Test, the Eating Habits Confidence Survey, and the Exercise Confidence Survey, were assessed at baseline.

The Dieting Readiness Test is a six-item self-report survey (a = 0.67; Sallis et al., 1988). Each item is rated on a five-point Likert Scale ranging from "not at all motivated" to "extremely motivated." The survey assesses motivation, commitment, and attitudes toward dieting that may impact readiness to begin a diet regimen. This scale has a number of items that focus on lowering fat intake, which was one of the primary rationales for including a second measure.

The Eating Habits Confidence Survey is a 13-item self-report assessment of how confident the individual is that he or she could motivate him or herself to make and sustain food intake-related changes (a = 0.70). The individual indicates how confident he or she is in regard to undertaking a specific action statement on a five-point Likert-type scale from "I know I can," at most confident, to "I know I cannot" indicating lack of confidence. Decker and Dennis (2013) validated this survey and established reliability (a = .83).

The Exercise Confidence Survey utilized was a modified ten-item scale; two items that possibly indicated a maladaptive overvaluation of exercise were not included (Sallis et al., 1988). The self-report survey evaluates confidence in motivation to undertake activities that individuals engage in when attempting to increase physical activity (a = 0.80). Individuals indicated how confident they were using the five-point Likert scale utilized in the Eating Habits Confidence Survey in response to the various statements.

Procedure

After providing informed consent and attending a group orientation participants completed baseline questionnaires, including the three questionnaires utilized in the present study, on a computer. Participants were then randomly assigned to one of the three intervention groups of progressive intensity: workbook only, computer guided intervention (CGI) only, or CGI plus clinical staff support. The approach utilized was cognitive-behavioral (CBT) in nature and

Table 1
Baseline Demographic Characteristics (N = 429)

	%	*n*	Mean (*SD*)
Age (years)			54.07 (11.46)
Gender			
Women	83.4	358	
Men	16.6	71	
Race/Ethnicity			
White/Caucasian	83.5	367	
Black	8.9	38	
Hispanic/Latino	3	13	
Asian	<1	2	
American Indian	<1	1	
Multiracial	<1	6	
Other	1.9	2	
Marital Status			
Married	69	296	
Single	14	60	
Divorced	10.3	44	
Widowed	6.8	29	
Education (highest level completed)			
Grades 10–11	<1	1	
High School	16.3	70	
Some college	24.9	107	
College degree	25.9	111	
Graduate degree	32.3	138	
Baseline BMI			35.36 (6.47)
BMI <25 + 1 cardiovascular risk	1.9	8	
BMI ≥25	98.1	421	
BMI 25–29.9	17.9	77	
BMI 30–34.9	33.3	143	
BMI 35–39.9	25.9	111	
BMI 40–44.9	11.4	49	
BMI 45+	9.6	41	
Weight (lbs)			
Baseline			211.39 (43.09)
6 months			205.71 (42.69)
12 months			205.83 (44.17)

Note. BMI = body mass index; weight in kig/height in m^2.

has been published as The Complete Weight Loss Workbook (Wylie-Rosett et al., 2001). The same CBT training modules were available in all three conditions: they are compiled in the workbook, and were applied in an individually tailored manner in the CGI and CGI plus clinical staff support conditions. The workbook contained a variety of self-help worksheets and handouts. Participants completed sections of the workbook that they deemed most relevant. Participants engaged with the CGI component on computerized touch screen kiosks at the study site. The CGI tailored activities to participant diet and exercise goals, indication of readiness for change, and current knowledge and behaviors. The CGI was comprised of three general topics: diet, physical activity, and psychological factors. Participants completed quizzes, chose homework prescriptions or goals, and rated their engagement in those goals during the following session. Each computerized session involved informative text, clips, quizzes and graphics.

Participants were told to use the kiosks weekly for the first three months, and monthly subsequent to that. Although participants were not time-,limited, a reminder of the elapsed time interrupted at the 20-minute mark, and average sessions spanned 20 to 30 minutes.

Staff support involved six group sessions led by a registered dietician and/or a cognitive-behavioral therapist. Additionally, participants had the option for up to 18 in-person or telephone sessions. Group sessions focused on the workbook assignments and utilization of CGI kiosks. Details of the intervention were previously elaborated by Wylie-Rosett and colleagues (2001).

Homework prescriptions were individually adapted based on the Transtheoretical Model of Change (Prochaska et al., 1994). The model determines an individual's stage of readiness for change (preaction, action, maintenance) dependent on responses to directed questions. The CGI then suggested appropriate diet, physical activity, or psychological well-being prescriptions for the participant's stage.

Table 2
Correlations of Change in BMI, Age and Dieting Readiness, Exercise Readiness and Eating Habits Confidence Survey Scores

	Age	Baseline BMI	Early BMI Change	Late BMI Change	Overall BMI Change	Dieting Readiness Test	Exercise Confidence Survey	Eating Habits Confidence Survey
Age		-.11*	-.02	-.01	-.02	.15**	-.06	-.03
Baseline BMI	-.11*		-.16**	.07	-.08	-.12*	-.04	-.16**
Early BMI Change	-.02	-.16**		-.01	.76**	.02	-.04	.01
Late BMI Change	-.01	.07	-.01		.64**	-.05	.02	-.02
Overall BMI Change	-.02	-.08	.76**	.64**		-.02	-.02	-.00
Dieting Readiness Test	.15**	-.12*	.02	-.05	-.02		.24**	.12*
Exercise Confidence Survey	-.06	-.04	-.04	.02	-.02	.24**		.33**
Eating Habits Confidence Survey	-.03	-.16**	.01	-.02	-.00	.12*	.33**	

Note. Early BMI Change = change from baseline to 6 months. Late BMI Change = change from 6 months to 12 months. Overall BMI Change = change from baseline to 12 months. On Dieting Readiness Test, Exercise Confidence Survey and Eating Habits Confidence Survey higher scores indicate greater readiness or confidence.
*$p < .05$ **$p < .01$.

Data Analysis

Statistical analyses were conducted using SPSS 22.0 for Mac (SPSS, Chicago, IL). A $p < .05$ level of significance was utilized in all analyses. Using Pearson's r we assessed the relationship between continuous variables. Analysis of variance was used to determine differences between group means.

Results

Demographics

Baseline demographics are described in Table 1. Initial sample size was 613. Little's test for missing data revealed that any missing data was missing completely at random (MCAR; $p = 0.67$), and thus cases with missing values were not included in the analysis, resulting in 429 participants with analyzable data. Mean age across all groups was 54.07 years, (SD = 11.46). Mean BMI at initial contact was 35.36, (SD = 6.47). Of the 429 participants, 83.4% were female and 85.5% were Caucasian. Sixty-nine percent of the sample was married. The vast majority of participants had some college education: 24.9% attended over a year of college, 25.9% held a college degree, and 32.3% had obtained a graduate degree. Roughly 25% of the participants identified as Catholic and 33.1% identified as Jewish.

Analyses

Baseline BMI was negatively correlated with the Dieting Readiness Test (r = -.12, p = .01), and the Eating Habits Confidence Survey (r = -.16, p = .001).

Age at baseline was positively correlated with score on the Dieting Readiness Test (r = .15, p = .003), and was negatively correlated with initial BMI (r = -.11, p = .02).

Principal components analyses with an oblique rotation were conducted on the three baseline surveys: Dieting Readiness Test, Eating Habits Confidence Survey, and Exercise Confidence Survey. These confirmed that they are measuring separate but coherent unitary constructs, however the three survey scores were correlated with each another. Table 2 depicts these correlations.

Mean change in BMI across the twelve-month study was -0.93 (SD = 2.34); change was also evaluated separately for the first and latter halves of the study. Mean early change (baseline through six months) was -0.95 (SD = 1.80) and late (six months through twelves months) was .02, (SD = 1.50).

No baseline survey score was related to change in BMI. However, when overall change in BMI was evaluated by group assignment, differences emerged. The 155 participants in the CGI only group had a mean change in BMI of -0.96 (*SD* = 2.43), the 183 participants in the CGI plus clinical staff had a mean change in BMI of -1.19 (*SD* = 2.34), and the 91 workbook only group subjects had a mean change of -0.37, (*SD* = 2.11). The effect of group randomization was significant, $F(2, 426) = 3.79$, $p = .02$. Post hoc comparisons using the Bonferroni correction indicated that CGI plus staff group (*M* = -1.19, *SD* = 2.30) lost significantly more BMI points on average in comparison to the workbook only group (*M* = -.37, *SD* = 2.10); the difference of -0.82 was significant, $p = .001$.

For early change in BMI, the 155 participants in the CGI only group had a mean change in BMI of -0.94 (*SD* = 1.91), the 183 participants in the CGI plus clinical staff had a mean change in BMI of -1.24 (*SD* = 1.88), and the 91 workbook only group subjects had a mean change of -.039 (*SD* = 1.28). The effect of group randomization was significant when this time frame was assessed as well, $F(2, 426) = 6.91$, $p = .001$. Post hoc comparisons using the Bonferroni correction indicated that the -0.85 observed difference between the CGI plus staff (*M* = -1.24, *SD* = 1.80) and workbook only groups (*M* = -0.39, *SD* = 1.30) was significant, $p = .001$.

Significant differences between groups were not observed in the latter half of the study. Mean changes in BMI were -0.02 for the CGI only group (*SD* = 1.47), 0.05 for the CGI plus staff group (*SD* = 1.42) and *M* = 0.02 for the workbook only group (*SD* = 1.77). Table 3 displays mean BMI at each time point as well as significant group differences in change in BMI.

Table 3
BMI at baseline, 6 months and 12 months

	Baseline	6 months	12 months
CGI only (*n* = 155)	35.17 (6.57)	34.23 (6.4)	34.21 (6.57)
CGI + Staff (*n* = 183)	35.17 (6.58)	33.93 (6.61)	33.98 (6.97)*
Workbook only (*n* = 91)	36.07 (6.07)	35.68 (5.99)	35.7 (6.3)*

Note. Values are means with standard deviations in parentheses. *Significantly different change in BMI from baseline to 6 months, and from baseline to 12 months between groups at *p* = .05 level.

Discussion

The aim of the current study was to explore the relationship between diet, exercise motivation and self-efficacy, and weight loss, due to the considerable inconsistency in the available literature (Byrne et al., 2012; Elfhag & Rössner, 2005; Fontaine & Cheskin, 1997; Linde et al., 2006; P. D. Martin et al., 2004; Teixeira et al., 2004). While our measures of dieting readiness, exercise readiness, and eating habits confidence were distinct yet related, none were correlated with a change in overall BMI, or BMI in the first or second half of the study. Further, outside of motivational level, program intensity level did result in significant differences in change in BMI, overall and specifically in the first half of the study, when most of the weight loss occurred.

The absence of a relationship between the two constructs, motivation and self-efficacy, and weight loss, replicates and extends the outcomes of other studies. Byrne, Barry and Petry (2012) conducted a study on baseline and change in diet and exercise self-efficacies using a twelve-week weight loss intervention consisting of reading materials and weekly 30 minute weigh-in and supportive counseling sessions. They determined that baseline self-efficacies were unrelated to weight loss results at the end of the twelve-week intervention in a pilot study of 30 participants. In a larger study of 109 obese participants, Fontaine and Cheskin (1997) found no correlation between pre-treatment self-efficacy, as measured by the Weight Efficacy Lifestyle Questionnaire, and individualized weight loss treatment success, which varied by individual participant in length of treatment program and either group or individual format. A review by Elfhag and Rossner (2005) further substantiated the lack of findings on the relationship between motivation and weight loss outcomes.

Other researchers have found self-efficacy to be predictive of weight loss success. Linde and colleagues (2006) conducted a condensed eight-week weight loss intervention involving weekly one-hour group sessions. Three hundred and forty nine participants completed a baseline, modified version of the Weight

Efficacy Lifestyle Questionnaire to examine both diet and exercise self-efficacies. Linde and colleagues (2006) found that baseline self-efficacy was correlated with both increased weight loss behaviors and weight change. In another study of 140 female participants, Teixeira and colleagues (2004) found that self-motivation was predictive of weight loss following a four-month weight loss intervention consisting of 15 two-hour group sessions. A defining methodological or character distinction between studies that resulted in correlations between self-efficacy and weight loss, and those that did not, is unclear. There was no particular differing measure, specific population, or intervention utilized throughout. However, in the studies reviewed, it appears that for those that utilized staff support in a group format, an association was found between the constructs of self-efficacy and weight loss outcomes. The explanation for this is not transparent. The question arises of how a group format adds to what staff or therapist support may add, or the mechanism by which motivation then contributes to weight loss.

Differing sample demographics did not seem to contribute to the lack of consistency in the findings of relationships between the constructs, however it is of note that our sample was largely homogenous. The sample was predominantly Caucasian, well-educated, and female. These sample demographics limit the ability to project the study findings to other samples, and may be applicable only to this specific population.

While our findings align with those who have not found a relationship between self-efficacy and weight loss, as previously discussed, the mode of measurement of motivation may be considered as a contributor to the differing results across studies. While we attempted to address this by utilizing two measures, some other studies utilized differing survey measures (e.g., Treatment Self-Regulation Questionnaire, Webber, Tate, Ward, & Bowling, 2010; Weight Efficacy Life-Style Questionnaire, Clark, Abrams, Niaura, Eaton, & Rossi, 1991, Fontaine & Cheskin, 1997). There does not appear to be consensus over the optimal way to measure motivation and self-efficacy contributing to various outcomes of the relationship between the constructs and weight loss. Particularly, self-efficacy is dependent on specific behaviors, goals and intentions. Potentially, researchers had slightly different foci lending toward disparate results. Even across the scales included in the present study, and the primary reason that both were included, differences were present. Specifically, one scale focuses heavily on lower fat intake, which does not adequately cover dieting self-efficacy.

On deeper evaluation, while surveys utilized in this study focused on the individual's beliefs about their ability to engage in and stick with a diet or exercise regimen, others focus on the reasons one undertakes the endeavor (Webber et al., 2010). Again, this highlights the lack of agreement on how to measure and tap into the construct, and again, this is likely a large contributing factor to the differing results across studies and the lack of positive findings despite the intuitive sense that they should exist. Future studies focused specifically on scale development and measurement would be beneficial in elucidating this elusive construct.

Roughly a third of American adults are obese, raising concern over the high cost of weight loss programs. This is an important point to consider when formulating weight loss programs (Wylie-Rosett, 2001). It may be of importance to understand the mechanism by which staff support increases change in BMI. Perhaps the individuals in these programs become further motivated by this sense of support. As many weight loss programs both in-person and online (e.g. Weight Watchers, 2014) now provide a sense of community and camaraderie, it may be advantageous in future research to examine whether online programs that allow for contact and community have similar outcomes to more expensive and labor intensive in-person programs.

This study focused on specific constructs in relation to weight loss intervention success. Obesity has been found to result from many and complex factors. A number of other variables shown to contribute to obesity, such as culture, stress, sleep and socioeconomic status, were not considered (as shown in, Beccuti & Pannain, 2011; Caprio et al., 2008; Dallman, 2010; MacLaren, 2007). Future studies can take into account a larger array of variables that may aid in predicting who would be successful in a weight loss program, or ways to alter weight loss programs so that they can address specific obstacles.

Further, change and fluctuation in self-efficacy were not assessed in this study. Martin and colleagues (2004) found that while baseline self-efficacy was predictive of lower rates of weight loss, increases in self-efficacy throughout the study were related to increased weight loss. Byrne, Barry and Petry (2012) found that while neither baseline diet nor exercise self-efficacy was predictive of weight loss, increasing exercise self-efficacy predicted weight loss. Future research may include repeated assessment to help illuminate the role of motivation and self-efficacy in weight loss. Repeated assessment would enable weight loss programs to properly target motivation and self-efficacy, to enhance weight loss success, and allow for understanding of the effect of staff and peer support on motivation.

Teixeira and colleagues (2012) proposed the idea that while motivation is often looked at quantitatively, as in this study, it is perhaps better assessed qualitatively, as the motivating factors may hold various meanings for different individuals (e.g., weight loss for cosmetic/aesthetic reasons versus health reasons, or goals that are intrinsically motivated versus extrinsically motivated). Alternatively, motivation can be broken down into these measurable components. Future research exploring the topic could perhaps take these factors into account to tease apart differences in motivation that may impact weight loss success.

Within this study, most of overall weight loss was found to occur early, within the first half of the study (first six months). As many studies looking at the relationship between self-efficacy and weight loss end considerably earlier than our study's one-year endpoint, these studies did not capture the valuable information about the timeline of weight loss, as was captured in this study (Bernier & Avard, 1986; Fontaine & Cheskin, 1997; Jeffery et al., 1984; Linde, Rothman, Baldwin, & Jeffery, 2006; Martin, Dutton, & Brantley, 2004; Teixeira et al., 2004; Webber, Gabriele, Tate, & Dignan, 2010).

Both theoretically, based on self-efficacy theory, and intuitively, motivation seems like a necessary ingredient to weight loss success. In this study, we found no relationship between these constructs. The study continues to contribute to the disparate body of literature on the relationship between motivation, self-efficacy and weight loss, continuing and enlarging the issue of its role. The core questions arise: does the relationship exist? Does it exist only for some? Are we truly capturing motivation and self-efficacy? Additional research can take into account the various methods of self-efficacy measurement, assess levels repeatedly, and do so over an adequate period of time within the context of an efficacious weight loss program.

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Predicting Harsh Parental Decisions: A Prospective Validation Study

Ralitsa S. Maduro
Quality Research Institute

Laurin B. Roberts
Old Dominion University

Brynn E. Sheehan
Quality Research Institute

James F. Paulson
Old Dominion University

Harsh parenting is a common practice among American parents, despite previous research suggesting that harsher parenting may yield negative child outcomes. There has been limited research aimed at experimentally investigating the onset of harsh parenting behavior. The goal of the current pilot study was to evaluate an analog measure for parenting behavior, which can be experimentally manipulated, and thus provide important information regarding events immediately preceding the decision of a parent to use harsh parenting techniques. The initial results suggest that the proposed analog measure is a reliable and valid tool for investigating parenting behavior. The most commonly endorsed parenting decision was to respond by explaining to the child why the behavior was not appropriate. Participants preferred harsher strategies when the parenting scenarios represented child tantrum behavior versus a safety concern for the child. This paper discusses recommendations for future evaluation of the measure.

Harsh parenting refers to physical and/or psychological punishment aimed at correcting a child's behavior, and is a common practice among parents in the United States (Kim, Pears, Fisher, Connelly, & Landsverk, 2010; Lansford et al., 2009). Harsh parenting has been linked to a host of negative outcomes for children (e.g., low emotion regulation, anger, delinquency, aggressive behavior, worsening conduct scores; Brody, et al. 2014; Chang, Schwartz, Dodge, & McBride-Chang, 2003; Gardner, Ward, Burton, & Wilson, 2003; Hinnant, Erath, & El-Sheikh, 2015); however, rates of harsh parenting remain high despite mutiple clinical interevention and prevention efforts (UNICEF, 2015). Such efforts aim to educate parents on techniques for managing a wide variety of child behaviors. But, according to decision-making theory (i.e. a theory of how rational individuals should behave under risk and uncertainty), knowledge of techniques only partially explains an individual's likelihood of performing that behavior, particularly when under stress (Starcke & Brand, 2012). With respect to parents' decision-making, little is known about the antecedents of a harsh parenting event, and the role that stress may play in altering decision-making (Scarnier, Schmader, & Lickel, 2009). There is a lack of research that clearly explores the effect of parent-relevant emotional distress on situationally-based parental decision-making.

Because of ethical and practical barriers in manipulating in vivo parenting behavior, current understanding of harsh parenting behavior is overwhelmingly based on correlational research, which has been criticized as insufficient (Benjet & Kazdin, 2003). Moreover, most of this research focuses on factors that are distal to harsh parenting events. As with other aspects of human behavior, parents engage in some process of decision-making around these events, which, if better understood, may inform interventions to mitigate riskier parenting behaviors. Because of this, there is substantial potential value in developing methodological tools that allow for experimental study of these processes. Indeed, the study of dynamic processes such as

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Corresponding author:
Ralitsa S. Maduro, rxmaduro@sentara.com

decision-making lends itself to such experimental methodology.

Although cognitive-emotional processes have been extensively examined in abnormal psychology (e.g., Garety et al., 2013) and neuroscience (e.g., Willment, Hill, Baslet, & Loring, 2015), few experimental investigations have explored the cognitive-emotional processes related to parenting behavior (Bakermans-Kranenburg, van IJzendoorn, Riem, Tops, & Alink, 2011; Out, Pieper, Bakermans-Kranenburg, Zeskind, & van IJzendoorn, 2010). In those few parenting experiments, the harsh parenting outcomes were measured indirectly, using measures such as handgrip force and opened ended reports, which may not adequately reflect harsh decision-making. For example, although hand-grip dynamometry has been validated for use in measuring physical and psychological arousal (Bohannon, 2015; Nealis, van Allen, & Zelenski, 2016), it does not provide insight as to the decision-making processes underlying the individual's reaction. The development of a research instrument and a technique with which researchers can reliably study the decision-making of parents appears to be a necessary first step to understanding harsh parenting. The authors of the current pilot study sought to validate a parental decision-making scale they had developed for the purposes of experimentally examining parenting behaviors. In addition, the study tested an experimental manipulation of analog parental decision-making, in order to provide insight into how cognitive-emotional processes affect parental decision-making and ultimately parenting behavior.

Cognitive-emotional Strain

Traditional theories of parenting behavior posit that parental discipline is often influenced by distal predictors such as socioeconomic status (Belsky, 1984; Reyno & McGrath, 2006; Rubin, Stewart & Chen, 1995). However, another set of theories emphasizes the importance of examining the effects of more proximal, situationally-based, cognitive-emotional processes of parents (Dix, 1993). Disciplining a child requires cognitive effort and can elicit cognitive strain, especially when a person perceives that he or she is unable or unsure of their ability to perform the task successfully (i.e., new parents; Lee, 1995). Indeed, cognitive and emotional strain mediates the effects of socio-demographic stress (i.e., employment stress) on maladaptive parenting behavior (e.g., rejecting a child; MacEwen & Barling, 1991; Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000), which may come from limited access to information or resources. However, even when parents report possessing the knowledge necessary to dicipline their children via non-harsh strategies, they may fail to utilize these strategies (Ateah & Durant, 2005). The increased burden of parents continuously resolving dilemmas, such as correcting child misbehavior, may leave parents depleted, stressed, or more vulnerable to negative emotion (Ho, Konrath, Brown, & Swain, 2015). Since parenting behavior often occurs in the context of intense emotion (Coplan, Reichel, & Rowan, 2009; Jones, Brett, Ehrlich, Lejuez, & Cassidy, 2014), this added cognitive strain may combine with other demands of parenting to increase the likelihood of adverse parenting behaviors. This proposed pathway is consistent with Ateah and Durant's (2005) finding that maternal reports of anger are the strongest predictor of physical punishment.

Traditional versus Progressive Parenting Beliefs

Although this paper aims to advance the understanding of the cognitive-emotional factors that influence parenting decision-making and behavior, it is difficult to study these processes without also addressing an individual's pre-existing beliefs about parenting. The formulation of these beliefs has been shown to be influenced by intergenerational transmission (e.g., belief in the acceptability of corporal punishment is communicated from grandparents to parents to children; Simons, Whitbeck, Conger, & Wu, 1991). Furthermore, intergenerational transmission of beliefs also leads to intergenerational transmission of behaviors (Serbin & Karp, 2004; Valentino, Nuttall, Comas, Borkowski, & Akai, 2012). In particular, a history of experiencing harsh parenting as a child has been linked to use of harsh parenting across diverse study samples and methodologies (Conger, Belsky, & Capaldi, 2009).

Once these beliefs are established, they are strongly linked to parenting behaviors (Socolar & Stein, 1995; Valentino et al., 2012). For instance,

parents who endorse more traditional (i.e., authoritarian) parenting views tend to believe that child behavior should follow adult directives at all times (Gershoff, 2002; Schaefer & Edgerton, 1985). These individuals are more likely to use harsh or punitive parenting practices such as spanking, slapping, hitting, or throwing something at a child (Jocson, Alampay, & Lansford, 2012). Progressive parents, on the other hand, favor more self-directed child behavior and are less likely to use harsh forms of parenting (Huston & Aronson, 2005; Lansford et al., 2014). Given these strong associations, we would expect an individual who endorses traditional beliefs to also endorse harsher strategies when it comes to parenting, regardless of other factors that might affect their decision-making.

Parental Decision-Making

Implications of decision-making theory for parenting research. Kahneman and Tversky's (1979) widely accepted Prospect Theory posits that decisions made under uncertainty are typically based on heuristics, or quickly-applied rules of thumb that guide behaviors without the need for deep processing. Heuristics are generally subjective and individualized, such that a person's use of heuristics is based solely on what they know at the point of decision-making. The use of heuristics does not require additional information-seeking before a decision is made (Kahneman, 2011), and parenting decisions are no different. Therefore, in an effort to avoid the confounding effects that previous parenting experience may have on the current study's results, we excluded individuals who have had child-rearing experience (e.g., parents, daycare teachers). Individuals who may already have heuristics regarding child rearing possibly have preferences for parenting decisions that are already well-practiced (i.e., habits that have already been acquired and cemented in place by experience), and including them in the study would not have allowed us to tease out the effects of the experimental manipulation versus the confounding effects of heuristics.

Measuring parental decision-making. Limited research exists that examines harsh parenting using experimental methodologies. In the few existing experimental studies, harsh parenting outcomes were measured using techniques such as handgrip force or open-ended reports (Bakermans-Kranenburg et al., 2011; Out et al., 2010). The use of these measurements in recent research, while valuable in its simplicity, highlights the need for a validated instrument through which harsh parenting can be measured in an experimental context. One possible means of capturing these parental-decisions in response to a stimulus is through the use of analog measures, specifically vignettes meant to act as an impetus for parental decision making. Vignettes are widely used in psychological research as a way to examine a multitude of outcomes. Across research, vignettes are most commonly defined as short stories or scenarios, and are designed to elicit a particular response, attitude, or belief (Barter & Renold, 2001; Hughes & Huby, 2004). One of the major benefits of utilizing this methodology in psychological research is the ability to study particularly sensitive topics such as abuse, bereavement, and related attitudes and beliefs. Mohan and colleagues (2014) found vignettes to be a validated way to measure decision-making among physicians in high-risk contexts, and recently this technique has been used to examine parenting behaviors. Specifically, Goubert and colleagues (2012) utilized a vignette methodology to study parenting responses (e.g., solicitousness) to hypothetical scenarios in which their children experienced pain. Given the ethical limitations of experimentally manipulating parenting behaviors, researchers are often limited in their ability to observe the criterion of interest, particularly in the context of harsh parenting. Importantly, vignettes that focus on parental decision-making may alleviate these barriers, and are therefore particularly useful for designing an experimental methodology and outcome of interest (i.e., harsh parenting in the current study).

The Present Study

No validated methodology for parenting decision-making experiments currently exists. This pilot study aimed to develop a validated experimental methodology to examine these phenomena, representing a preliminary step in establishing the feasibility of this type of research. In general, understanding the situationally-based decision-making which parents utilize prior to engaging in

harsh parenting is expected to have broad implications for the development and improvement of prevention interventions for parents.

This pilot study aimed to validate a newly-developed parenting decision-making measure, and test whether exposure to an experimental stress condition that was meant to elicit cognitive-emotional strain would predict a stronger preference for harsh parental decision-making. Since pre-existing parental attitudes (e.g., traditional and progressive parenting) are associated with use of harsh parenting (Jocson et al., 2012), we expected that traditional ideas about parenting would be significantly and positively correlated with harsher parenting responses on our eight vignettes. We also hypothesized that progressive ideas about parenting would be significantly and negatively correlated with harsher parenting responses.

Lastly, we were interested in examining whether exposure to cognitive-emotional strain would elicit endorsement of harsher parenting tactics. Our stress manipulation was based on the established physiological arousal effects of infant cry on human behavior (Bowlby, 1969; Swain, Lorberbaum, Kose, & Strathearn, 2007). We hypothesized that exposure to a baby crying condition would correspond with greater endorsement of harsh parenting strategies.

Method

Participants

Participants were 139 undergraduate students recruited from a research pool at a large Southeastern public university. Due to an error in the demographics questionnaire, the participants were not asked to report their gender, however, all participants were drawn from a specific university undergraduate participant pool, which has a 69% female to 31% male gender split. To be eligible, participants had to be at least 18 years of age. The mean age of participants was 20.32 (*SD* = 5.05) years. Participants were 39.6% Caucasian, 35.3% African American, 7.9% Asian, 0.7% American Indian or Alaskan Native, and 16.5% "Other."

Participants were selected if they had no experience as parents, raising or babysitting a child, working at a daycare facility, or taking any formal parenting training classes as a course or employment requirement. Participants received course credit for their participation. All identifying information was kept strictly confidential.

Measures

Attitudes about parenting. The Parental Modernity Inventory (Schaefer & Edgerton, 1985) was used to assess one's attitudes about childrearing. The 30-item measure used a 4-point Likert scale from 1 = *strongly disagree* to 4 = *strongly agree*. Based on the responses to items such as, "Children have a right to their own point of view and should be allowed to express it," each person received a progressive childrearing subscore (a higher progressive subscore indicates more progressive parenting attitudes) and a traditional childrearing score (a higher traditional subscore indicates more traditional parenting attitudes). The measure has a Cronbach's alpha range between .88 and .94, and has shown good test-retest reliability, with a correlation of .84 between time points (Schaefer, 1989).

Parenting behavior. Parenting behavior was assessed via the Analog for Parental Decision-making (APD) measure. A series of eight child behavioral vignettes were developed for this study. Two types of misbehavior vignettes were presented for each of four different child ages: 10 months, 1.5 years, 2.5 years, and 3.5 years. A range of ages and types of evocative child behavior were chosen to capture a variety of family circumstances in which parents are often called to respond with corrective action. One vignette for each age represented a behavior that was dangerous to the child's health and safety, while the other represented child defiant or oppositional behavior organized around a denied want. There were three subscales of the APD: Importance of Action, Harshness of Action Choice, and Preference for Action Choice (see Appendix A).

Importance of Action. After reading each vignette, respondents were asked to rate how important is it that they do something to address the child's behavior. The options ranged from 1 (extremely unimportant) to 7 (extremely important). A total score was computed by deriving the mean of the eight responses, with higher scores indicating higher perception of importance to act.

Harshness of Action Choice. After reading each vignette, respondents were asked to choose a specific parenting response. The choices were as follows: 1 (ignore the behavior), 2 (attempt to distract the child by talking, playing, singing, etc.), 3 (explain to the child why their behavior is not appropriate), 4 (raise your voice to the child), 5 (threaten to punish the child), and 6 (spank, hit, or slap the child). By forcing participants to select one response, participants were conceivably engaging in a fast thinking process. A total score was computed by deriving the mean across all vignettes, with higher scores indicating harsher parenting choices.

Preference for Action Choice. After choosing a parenting action, respondents were asked to indicate the degree to which they preferred each of the responses provided to them in the action choice (i.e., ignore the behavior; attempt to distract the child by talking, playing, singing, etc.; explain to the child why their behavior is not appropriate; raise your voice to the child; threaten to punish the child; and spank, hit, or slap the child). Preference for action responses ranged from 1 (strongly not prefer) to 7 (strongly prefer). In contrast to Harshness of Action Choice, participants completing Preference for Action Choice were able to mindfully evaluate each behavioral response and indicate to what degree they would or would not prefer that particular action.

Procedure

Interested and eligible participants were randomly assigned to one of three conditions: No Noise, Other Noise, or Baby Crying. Participants in the Other Noise or Crying conditions experienced noise for the entirety of the experiment (no less than 30 minutes and no more than 60 minutes).

Upon arrival, participants completed an informed consent process. They were then seated in a room where they completed a demographic questionnaire including general information such as race, age, and income. Participants were then asked to read and respond to a series of parenting scenarios. Finally, participants were asked to complete measures related to their attitudes about parenting (i.e., traditional, progressive). During this period of computer-based questionnaire completion, participants were exposed to the experimental condition to which they were assigned.

Experimental manipulation. Participants in the No Noise condition did not hear any experimentally-induced noise during the experiment. Participants in the Other Noise condition were exposed to a non-specific adult chatter background noise, which sounded like conversation in an adjoining room for which specific words could not be identified. Participants in the Baby Crying condition were informed at the time of their arrival that there was another parenting experiment running in the laboratory space adjacent to the study room. Once the participants in the experimental condition began the study, a crying baby noise, combined with adult chatter background noise, was played from the room adjacent to study room. Both the *Other Noise* and *Crying Baby* noise were played at a level measured at 55 decibels in the participants' space, which was calibrated to be consistent with noise coming from the adjacent room.

After completion of the experiment, the researchers debriefed all participants. The debriefing procedure included the researcher explaining the true purpose of the experiment, and a handout with experimenter contact information and on campus resources in the case of emotional distress. During the debriefing, participants were asked to provide feedback on the experimental manipulation.

Statistical Analyses

Descriptive statistics were used to evaluate parental decision-making as measured by the APD (see Tables 1 through 4 for means and frequencies of Importance of Choice, Harshness of Choice, and Preference for Action Choice by vignette and items). An exploratory factor analysis was conducted on the Preference for Action Choice subscale. To assess criterion validity, we correlated Preference for Action Choice with measures of traditionality, progressiveness, and the Harshness of Action Choice subscale. Finally, to test the experimental manipulation, one-way analyses of variance (ANOVA) were conducted to examine if Harshness of Action Choice and Preference for Action Choice differed by experimental condition. Data were checked for extreme outliers, and assumptions of ANOVA were met.

Table 1
Means for Importance of Action by Vignette

	Vignette 1	Vignette 2	Vignette 3	Vignette 4	Vignette 5	Vignette 6	Vignette 7	Vignette 8
Importance of Action	5.96	6.81	6.64	6.81	6.35	6.46	6.37	6.13

Note. Answer options ranged from 1 to 7.

Table 2
Means for Harshness of Action Choice by Vignette

	Vignette 1	Vignette 2	Vignette 3	Vignette 4	Vignette 5	Vignette 6	Vignette 7	Vignette 8
Action Choice	2.29	2.76	4.01	3.86	3.87	3.14	3.88	3.01

Note. Answer options ranged from 1 to 6.

Table 3
Harshness of Action Choice by Vignette

	Vignette 1	Vignette 2	Vignette 3	Vignette 4	Vignette 5	Vignette 6	Vignette 7	Vignette 8
1. Ignore	4 (2.9%)	0 (0%)	0 (0%)	2 (1.4%)	3 (2.2%)	2 (1.4%)	13 (9.4)%	5 (3.6%)
2. Distract	98 (70.5%)	64 (46%)	4 (2.9%)	0 (0%)	0 (0%)	19 (13.7%)	8 (5.8%)	15 (10.8%)
3. Explain	32 (23%)	54 (38.8%)	58 (41.7%)	62 (44.6%)	77 (55.4%)	90 (64.7%)	42 (30.2%)	102 (73.4%)
4. Raise Voice	3 (2.2%)	16 (11.5%)	35 (23.2%)	45 (32.4%)	12 (8.6%)	20 (14.4%)	20 (14.4%)	12 (8.6%)
5. Threaten	2 (1.4%)	1 (.7%)	17 (12.2%)	12 (8.6%)	26 (18.7%)	2 (1.4%)	32 (23%)	1 (.7%)
6. Hit	0 (0%)	4 (2.9%)	25 (18%)	18 (12.9%)	21 (15.1%)	6 (4.3%)	24 (17.3%)	4 (2.9%)

Note. Values reflect frequency of response.

Table 4
Preference for Action Choice Values by Vignette

	Vignette 1	Vignette 2	Vignette 3	Vignette 4	Vignette 5	Vignette 6	Vignette 7	Vignette 8
1. Preference to Ignore	2.55	2.58	1.26	1.55	1.47	1.95	1.99	2.23
2. Preference to Distract	**6.10**	**5.78**	2.17	2.73	1.95	4.06	2.64	3.73
3. Preference to Explain	5.11	5.68	**5.93**	**6.15**	**6.27**	**6.41**	**5.84**	**6.33**
4. Preference to Raise Voice	3.10	3.53	4.88	5.32	4.54	4.13	4.84	3.40
5. Preference to Threaten	2.41	2.25	3.99	3.94	4.55	2.86	4.75	2.53
6. Preference to Hit	1.63	1.81	2.99	3.06	3.11	2.15	3.36	1.83

Note. Higher scores = higher preference. Highest mean decision preference for each vignette is denoted by bolded values.

Results

Analog for Parental Decision-Making

Preference for action choice. Participants' mean Preference for Action for all vignettes ranged from 1.26 to 6.41. The most commonly preferred parenting action for vignettes involving a 10-month-old child was attempting to distract the child by engaging in other behavior such as talking, playing, or singing. The most commonly preferred action for all other vignettes was explaining to the child why the particular behavior was inappropriate. See Table 4 for decision preference values by vignette.

Factor analysis of preference for action choice. Forty-eight items (i.e., six items for each of the eight vignettes) relating to preference for parenting action were factor analyzed using principal axis factor analysis with communalities ranging from .15 to .59. Based on the Scree plot and theoretical support, a two-factor solution was examined with Promax rotation. The two-factor solution explained a total of 27.19% of the variance for the entire set of variables. Factor 1 was labeled as harsh parenting due to high loadings by the following items: "Raise your voice to the child to get them to stop," "Threaten to punish the child if they do not stop," and "Spank, hit, or slap the child to make them stop." The factor loadings ranged from .39 to .77.

Currently, the literature does not indicate a standard lower limit factor loading in order for an item to be retained in a measure (Comrey & Lee, 1992; Gorsuch, 1983; Matsunga, 2010). For the purposes of this study, we decided to set our cutoff at .3 or greater, provided that the item loaded clearly. The items "Ignore the behavior and continue on with your activities," "Attempt to distract the child by talking, playing, signing, etc.," and "Explain to the child why their behavior is not appropriate" did not meet the above mentioned criteria. These items were removed from the factor to create a 24-item factor of preference for harsh parenting, which included harsh parenting items only. It is recommended, however, that the three items that were removed from the factor remain in the questionnaire as whole because they provide non-harsh options to the responders.

The 24 item harsh-parenting scale was factor analyzed using a one-factor solution. The KMO (KMO = .825) and Bartlett's Test of Sphericity ($p < .001$) indicated that the set of variables were adequately related for factor analysis. The one-factor solution explained 34.81% of the variance for the entire set of variables (see Table 5 for factor loadings).

Table 5
Factor Analysis Table for Preference for Harsh Parenting

Vignette Number and Item	Factor 1 Loadings
10 mo. Disruptive Scenario "Raise your voice"	.39
10 mo. Disruptive Scenario "Threaten to punish"	.46
10 mo. Disruptive Scenario "Spank, hit, or slap"	.52
10 mo. Safety Scenario "Raise your voice"	.47
10 mo. Safety Scenario "Threaten to punish"	.55
10 mo. Safety Scenario "Spank, hit, or slap"	.58
18 mo. Disruptive Scenario "Raise your voice"	.47
18 mo. Disruptive Scenario "Threaten to punish"	.66
18 mo. Disruptive Scenario "Spank, hit, or slap"	.70
18 mo. Safety Scenario "Raise your voice"	.52
18 mo. Safety Scenario "Threaten to punish"	.77
18 mo. Safety Scenario "Spank, hit, or slap"	.73
2.5 yr. Disruptive Scenario "Raise your voice"	.53
2.5 yr. Disruptive Scenario "Threaten to punish"	.75
2.5 yr. Disruptive Scenario "Spank, hit, or slap"	.68
2.5 yr. Safety Scenario "Raise your voice"	.51
2.5 yr. Safety Scenario "Threaten to punish"	.64
2.5 yr. Safety Scenario "Spank, hit, or slap"	.62
3.5 yr. Disruptive Scenario "Raise your voice"	.51
3.5 yr. Disruptive Scenario "Threaten to punish"	.69
3.5 yr. Disruptive Scenario "Spank, hit, or slap"	.73
3.5 yr. Safety Scenario "Raise your voice"	.39
3.5 yr. Safety Scenario "Threaten to punish"	.53
3.5 yr. Safety Scenario "Spank, hit, or slap"	.53
Eigenvalue	8.96
Total Variance	37.33

Reliability and Validity

Participants' preference for harsh parenting was found to be highly reliable with a Cronbach's α = .925. Pearson's r correlations revealed that preference for harsh parenting was positively correlated with traditionality (r = .305, $p < .001$) and negatively correlated with progressiveness (r = -.209, p = .014). Due to the ranking nature of the harshness of action variable, we used both a parametric (Pearson's r) and

Table 6
Parametric and Nonparametric Correlations between Subscales of the ADP measure, Traditionality, and Progressiveness

Measure	1.	2.	3.	4.	5.
1. Importance of Action	(6.44/.64)	–	–	–	–
2. Harsh Parenting Decision	$.16_s$	(3.35/.61)	–	–	–
3. Preference for Harsh Parenting	.10	$.75_s$**	(10.11/3.56)	–	–
4. Progressiveness	-.06	$-.18_s$*	-.21*	(31.23/3.73)	–
5. Traditionality	.08	$.21_s$*	.31**	-.29**	(69.90/13.21)

Note. *$p < .05$, **$p < .001$; Nonparametric correlations have a subscript of *s*. Diagonal Values Represent means and standard deviations.

a nonparametric (Spearman's rho) correlation. Both methods yielded the same results, which revealed that preference for harsh parenting was also strongly correlated with harshness of action choice ($r = .752$, $p < .001$; rs = .749, $p < .001$; see Table 6).

Experimental Hypothesis

Analyses of variance revealed that neither preference for harsh parenting, $F(2, 136) = 0.19$, $p = .831$, nor harshness of action choice, $F(2, 136) = 0.39$, $p = .681$, differed by experimental condition.

Discussion

The goal of this pilot study was to provide insight into how cognitive-emotional processes affect parenting decision-making, as measured by our new Analog for Parental Decision-Making (APD) scale. The main aims of the pilot study were to provide evidence for acceptable internal consistency and validity of the APD instrument, and test an experimental paradigm for studying the effects of cognitive-emotional strain on preference for harsh parental decision-making.

The results suggest that the APD is a reliable and valid measure of harsh parenting preferences. Results of the exploratory factor analysis demonstrated a single factor of harsh parenting preferences across the eight vignettes. The resulting 24-item harsh parenting scale demonstrated excellent internal consistency. Further, our results demonstrated significant relationships between participants' pre-existing attitudes of traditionality and progressivism with preferences for harsh parenting. That is, traditional parenting attitudes were significantly and positively correlated with harsher parenting preferences. In contrast, progressive parenting attitudes were significantly and negatively correlated with harsher parenting preferences. Importantly, these findings align with previous research on parental attitudes and corresponding behaviors (Jocson, Alampay, & Lansford, 2012; Schaefer & Edgerton, 1985; Socolar & Stein, 1995), and provide evidence for the concurrent validity of the APD scale.

Importance and Choice of Action

Across the analog measure of parenting responses, participants expressed a strong belief in the importance of correcting various types of child misbehaviors, as evidenced by the high proportion of participants stating that it was somewhat to extremely important to do so.

The most commonly endorsed parenting decision was to respond by explaining to the child why the behavior was not appropriate. For each individual parenting scenario, parenting decisions ranged from attempting to distract the child by engaging them in other activities, to raising one's voice to the child in an attempt to get them to stop the misbehavior. The parenting scenarios that focused on younger children (i.e., 10 months) demonstrated responses which reflected utilizing distraction, whereas parenting scenarios that focused on older children demonstrated parenting responses which reflected an explanation as to why the behavior was wrong (i.e., Vignettes 4 to 8) or raising your voice (i.e., Vignette 3).

While in general a harsh response was infrequent, there were parenting scenarios which yielded a sizable percentage of harsh responses. Participants

specifically preferred these harsher strategies when the parenting scenarios represented child tantrum behavior (e.g., on the ground [in a restaurant] flailing arms and legs while screaming loudly) versus a safety concern for the child (e.g., pulls at the dogs whiskers, eliciting a growl). Twice as many participants endorsed the "Spank, hit, or slap the child to make sure they don't do that again" when the scenarios represented child tantrum behavior (Vignettes 1, 3, 5, and 7), compared to when they represented a safety concern (Vignettes 2, 4, 6, and 8). Literature suggests that parents who have a temperamentally difficult child (Vitaro, Barker, Boivin, Brendgen, & Tremblay, 2006) and/or perceive the child's misbehavior to be intentional (Ateah & Durrant, 2005) report higher rates of harsh parenting practices.

Preference for Action Choice

As previously mentioned, preferences representative of harsh parenting decisions (e.g., "Raise your voice to the child to get them to stop") loaded strongly onto a single factor. In contrast, preferences for non-harsh parenting decisions (e.g., "Ignore the behavior and continue on with your activities") did not demonstrate loadings representative of a second unitary factor. However, in reviewing the items, it became apparent that the answer options were considerably heterogeneous, therefore we could not expect them to load on one factor. Specifically, the decision to ignore a child's misbehavior is conceptually different from the decision to attempt to explain to the child why a behavior is not appropriate. Further, the decision to ignore a child's misbehavior is also different from choosing to distract the child through talking, playing, or singing. The conceptual differences among these non-harsh actions would be expected to produce a factor structure that is not unitary; we would not expect a "non-harsh" factor to appear given the significant differences between these actions. Thus, the refined 24-item scale does most adequately measure a single factor of harsh parenting preferences and decisions.

Responses to preferences for parenting action varied across scenarios. Overall, participants reported higher preferences for distraction and explaining why the behavior was wrong, compared to other responses. These response patterns may reflect the participants' perception of the feasibility of parenting strategies with certain aged children. For example, explaining the reasoning behind why a behavior is considered "wrong" may not be developmentally practical with younger, minimally-verbal children, and instead parents may make use of more effective distraction techniques to correct misbehavior.

Our second aim for the pilot study was to experimentally test the effects of cognitive-emotional strain of harsh-parenting preferences. We hypothesized that the experimental methodology employed to test the APD instrument would yield results suggesting that participants under a high cognitive-emotional stress condition would have significantly higher levels of preference for harsh parenting strategies, compared to participants in the control groups. However, our results did not support this hypothesis. This may be due to a number of factors. From a methodological standpoint, the relatively low baby crying noise may have not been sufficient to induce stress within participants. In turn, the lack of stress may be the reason for the lack of significant variance in emotional reactivity between the participants. If a future study resolves such methodological issues and the null results remain, findings may reflect dispositional differences in participants. Specifically, literature suggests that individuals vary in dispositional aggression and/or empathy (DeWall, Baumeister, Stillman, & Gailliot, 2007; Ho et al., 2015). As such, responses to parenting stress may be dependent upon such dispositional level differences rather than a situational cognitive strain. It is important to note that our current data does not allow us to determine the reasons behind our non-significant results, but methodological changes in future studies may provide insight.

Limitations and Future Directions

Several limitations should be noted. First, due to an error in the demographics questionnaire, the gender of our sample was not obtained, and thus, we were unable to discern potential differences in harsh parenting preferences between men and women. Despite this, based on recent research conducted at the university, we may reasonably assume that the gender makeup of the current sample was approximately 60%

female. Second, it is possible that the experimental manipulation did not induce significant changes in parenting decisions because the sound level of the crying baby noise was very low, comparable to faint chatter in an adjacent room (55 decibels). Future research should consider using a louder crying baby noise, comparable to a baby crying in the same room as the participants (average of 84 decibels; Jones, 1992). Additionally, it would be important for future research to include a manipulation check for participants' experiences of stress, as well as their perception of the baby crying noise (e.g., resulting level of annoyance from baby crying manipulation).

Although the analog measure of parenting responses (i.e., APD) proposed by this pilot may capture variation in parenting decision-making and behaviors, it falls short of demonstrating how an actual parent would behave in a given scenario. In an effort to maximize the validity of the analog measure of parenting responses, researchers should consider adding an open-ended response field to allow participants to respond in a way other than what is offered by the response options. In addition, future research should impose realistic temporal constraints so that the information gathered from analog instruments, such as the APD, can more closely reflect the real-life disciplining experiences of parents.

Family psychologists have expressed the concern that parenting research appears to be grounded in correlational studies due to the impracticality of experimentally manipulating harsh parenting behavior (Benjet & Kazdin, 2003). Despite limitations, our pilot study describes a cost-effective and innovative method of measuring and studying the likelihood of endorsement of harsh parenting strategies via experimental means. Most importantly, our preliminary validation of the APD instrument is a first step toward a wider body of research utilizing experimental methodologies in parenting research.

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Appendix A
Analog for Parental Decision-making

This questionnaire will present a series of vignettes, or stories about an episode of child behavior. As you read each of these, imagine yourself being in the position of the parent of the child who is portrayed. As you finish reading each vignette, pay close attention to the first reactions that come to your mind and use those reactions to guide your responses to the questions about the vignette.

Vignette 1. You are driving on a long car trip with your **10-month old** child secured in a car seat in the back seat area of your car. The child is quietly watching a cartoon on a portable DVD player when the DVD player suddenly stops working. The child starts fussing and this fussing eventually turns into crying and screaming that becomes so loud that it makes it difficult for you to concentrate on driving.

As a parent of this child, how important is it that you do something to address this behavior?

1–7pt (Extremely Unimportant – Extremely Important)

As a parent of this child, which of the following responses is the closest to what you might do?

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to get them to stop
5. Threaten to punish the child if they do not stop.
6. Spank, hit, or slap the child to make them stop.

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1–7pt (Strongly Not Prefer – Strongly Prefer)

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to get them to stop
5. Threaten to punish the child if they do not stop.
6. Spank, hit, or slap the child to make them stop.

Vignette 2. You are at home alone doing household chores when you realize that your **10-month-old** has crawled over to an electrical outlet that has several items plugged into it. Your child is reaching into the electrical cords and tugging at them. This is an extremely alarming behavior and you worry that your child might be hurt. You immediately move the child away from the danger.

As a parent of this child, how important is it that you do something to address this behavior?

1–7pt (Extremely Unimportant – Extremely Important)

As a parent of this child, which of the following responses is the closest to what you might do?

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to make sure they don't do that again
5. Threaten to punish the child if they do that again.
6. Spank, hit, or slap the child to make sure they don't do that again.

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1–7pt (Strongly Not Prefer – Strongly Prefer)

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to make sure they don't do that again
5. Threaten to punish the child if they do that again.
6. Spank, hit, or slap the child to make sure they don't do that again.

Vignette 3. You are at a friend's home with your **1 ½-year-old** toddler, who is playing with your friend's child of a similar age. You see your child strike and bite the other child in order to get a toy. After being struck and bitten by your child, your friend's child starts crying loudly as your child plays with their stolen toy.

As a parent of this child, how important is it that you do something to address this behavior?

1–7pt (Extremely Unimportant – Extremely Important)

As a parent of this child, which of the following responses is the closest to what you might do?

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Spank, hit, or slap the child.

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1–7pt (Strongly Not Prefer – Strongly Prefer)

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Spank, hit, or slap the child.

Vignette 4. You are putting items into your car after a shopping trip when your **1 ½-year-old** toddler pulls away from your hand and runs into the parking lot where a car has to stop suddenly to avoid striking the child. You quickly collect your child and bring them back to the car.

As a parent of this child, how important is it that you do something to address this behavior?

1–7pt (Extremely Unimportant – Extremely Important)

As a parent of this child, which of the following responses is the closest to what you might do?

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to make sure they don't do that again
5. Threaten to punish the child if they do that again.
6. Spank, hit, or slap the child to make sure they don't do that again.

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1–7pt (Strongly Not Prefer – Strongly Prefer)

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to make sure they don't do that again
5. Threaten to punish the child if they do that again.
6. Spank, hit, or slap the child to make sure they don't do that again.

Vignette 5. You are shopping in a grocery store with your **2 ½-year-old** preschooler, who is riding in the cart. When you arrive at the checkout aisle, your child asks for candy, but you deny this request. The child becomes upset, fusses, and then says "shit" loudly. Other people in the store turn to look at you and your cursing child.

As a parent of this child, how important is it that you do something to address this behavior?

1–7pt (Extremely Unimportant – Extremely Important)

As a parent of this child, which of the following responses is the closest to what you might do?

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Spank, hit, or slap the child.

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1–7pt (Strongly Not Prefer – Strongly Prefer)

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Spank, hit, or slap the child.

Vignette 6. You are cooking pasta at home while your **2 ½-year-old** preschooler, interested in what you're doing, is in the kitchen looking on. The child unexpectedly grabs a spoon and attempts to stir the pasta, almost knocking the pot of boiling water off of the stove and onto themselves. You stop the child and move the pot of boiling water away from the front of the stove.

As a parent of this child, how important is it that you do something to address this behavior?

1–7pt (Extremely Unimportant – Extremely Important)

As a parent of this child, which of the following responses is the closest to what you might do?

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to make sure they don't do that again
5. Threaten to punish the child if they do that again.
6. Spank, hit, or slap the child to make sure they don't do that again.

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1–7pt (Strongly Not Prefer – Strongly Prefer)

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to make sure they don't do that again
5. Threaten to punish the child if they do that again.
6. Spank, hit, or slap the child to make sure they don't do that again.

Vignette 7. You are eating dinner at a restaurant with your **3 ½-year-old** preschooler and other family members. Your child does well at dinner, but becomes very upset when they realize that there will be no dessert. The child's behavior rapidly deteriorates with the child ultimately tantruming –on the ground flailing arms and legs while screaming loudly.

As a parent of this child, how important is it that you do something to address this behavior?

1–7pt (Extremely Unimportant – Extremely Important)

As a parent of this child, which of the following responses is the closest to what you might do?

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Spank, hit, or slap the child.

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1–7pt (Strongly Not Prefer – Strongly Prefer)

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Spank, hit, or slap the child.

Vignette 8. You are going for a walk around the neighborhood with your **3 ½-year-old** preschooler. You encounter a new neighbor walking a large unfamiliar dog. When you stop to greet the neighbor, your child gets close to the dog and excitedly pulls at the dogs whiskers, eliciting a growl. You are able to move your child back from the dog before the situation escalates.

As a parent of this child, how important is it that you do something to address this behavior?

1–7pt (Extremely Unimportant – Extremely Important)

As a parent of this child, which of the following responses is the closest to what you might do?

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to make sure they don't do that again
5. Threaten to punish the child if they do that again.
6. Spank, hit, or slap the child to make sure they don't do that again.

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1–7pt (Strongly Not Prefer – Strongly Prefer)

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Explain to the child why their behavior is not appropriate.
4. Raise your voice to the child to make sure they don't do that again
5. Threaten to punish the child if they do that again.
6. Spank, hit, or slap the child to make sure they don't do that again.

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Expectations of Educational Success as a Mediator Between Racial Discrimination and College GPA

Dominique Thomas
Georgia State University

Experiences of racial discrimination continue to be an issue for African American college students. Such experiences can lead to African American students having lower expectations of academic success, negatively impacting academic performance. In a sample of African American college students, this study tested three hypotheses: first, that greater perceptions of racial discrimination would be related to lower expectations for educational success. Second, higher expectations for educational success would be predictive of higher academic performance. Third, greater perceptions of racial discrimination would predict lower academic performance through the negative effect of racial discrimination on expectations for educational success. The study sample consisted of 162 African American college students. The current study employed path analyses, an extension of multiple regression that test causal relationships between variables, to test the hypotheses. The findings supported all three hypotheses. Racial discrimination significantly predicted expectations for educational success, and expectations for educational success significantly predicted academic performance. Racial discrimination had a significant indirect effect on academic performance via expectations for educational success. This research has implications for the academic success of African American college students and how universities may promote or hinder their success.

Racial discrimination has been found to impede the academic success of African American college students in several ways. For example, Solorzano, Ceja, and Yosso (2000) found that colleges with negative racial climates contributed to African American students having lower expectations for academic success, dropping classes, changing majors, and transferring schools. Overall, discriminatory experiences, such as negative stereotypes and low expectations from professors, can have a negative impact on African American students' attitudes toward education and their performance. Because of this deleterious impact on African American college students' attitudes and performance, it is important to further understand the process through which racial discrimination negatively affects academic attitudes and performance.

Racism in Education

School-based discrimination can negatively affect African American students' attitudes toward education. Much of the research on the relationship between racial discrimination and academic attitudes has been focused on adolescents, but research suggests that such findings hold true for college students as well (Reynolds, Sneva, & Beehler, 2010; Solorzano, Ceja, & Yosso, 2000). Mickelson (1990) discussed the attitude-achievement paradox, which describes the two conflicting views of education African Americans have been found to have. Mickelson posits that many African American students possess abstract beliefs, consistent with widely held views in society, that education is important and necessary for success. An abstract belief is aspirational in nature and may not necessarily reflect the lived experiences of individuals who hold these beliefs. On the other hand, they also have concrete beliefs that are based on their personal experiences as well as those of their parents; these beliefs may contradict the dominant view of education. The concrete beliefs are their realistic expectations based on lived experiences in the education system. African American students may believe their education is important, but their concrete beliefs based on their experiences with

Corresponding author:
Dominique Thomas, thomas60@student.gsu.edu

racism in the education system lead them to have lower expectations for academic success.

Howard's (2003) interviews with African American high school students support this. The students talked about negative attitudes of teachers and administrators. These attitudes lowered the students' motivation in school. Additionally, they were discouraged from taking advanced placement classes because the teachers did not think they were intelligent enough for the classes and counselors told them the classes were too difficult for them. Students also felt that they were not given adequate opportunity to showcase their intelligence and knowledge. They attributed such treatment to racial biases and stereotypes. The students thought that because they were African American, the teachers and administrators were less invested in their success.

Quantitative studies have also provided evidence of the negative impact of racial discrimination on academic attitudes (Eccles, Wong, & Peck, 2006; Wang & Huguley, 2012). Neblett, Philip, Cogburn, and Sellers (2006) found that racial discrimination was related to less academic curiosity and persistence. Similarly, Wang and Huguley found that racial discrimination from both peers and teachers was related to more negative academic attitudes and outcomes (e.g. lower aspirations, lower engagement). Eccles, Wong, and Peck also found that racial discrimination from peers and teachers was related to students placing less value on education, and having a lower self-concept of their ability and lower academic achievement. Research has also suggested that experiencing racial discrimination decreases the likelihood that an individual will go to college (O'Hara, Gibbons, Weng, Gerrard, & Simons, 2012; Wood, Kurtz-Costes, & Copping, 2011). Unfortunately, enrolling at a college neither means that discrimination ends there nor does it mean that the experiences cease to be harmful (Reynolds, et al., 2010; Solorzano et al., 2000).

Research has demonstrated the deleterious effect of racial discrimination on academic attitudes for African American college students. Reynolds, Sneva, and Beehler (2010) found that racial discrimination was related to lower levels of motivation from external factors in college students. Solorzano and colleagues (2000) conducted a qualitative study examining how the college racial climate impacted African American students. Consistent with previous research, they found that many students were negatively affected by their experiences with discrimination. Some stated that they felt invisible and their experiences as African Americans were not adequately represented in the curriculum, particularly on topics such as racism. Furthermore, teachers' low expectations, even when there was no evidence to support them, led some students to believe they could not succeed academically, and they resorted to actions such as transferring schools (Solorzano et al., 2000). This body of research illustrates the negative impact that racial discrimination has on the expectations of success for African American students. One theory that can explain the pathway through which racial discrimination harmfully affects expectations for educational success and performance of African Americans is expectancy-value theory (Eccles et al., 1983).

Expectancy-Value Theory of Achievement Motivation

Expectancy-value theory of achievement motivation (Eccles et al., 1983) provides a framework for understanding achievement-based decisions and behaviors, as well as how racial discrimination impacts such decisions and behaviors. The theory states that expectations for success directly impact school performance. Expectations usually refer to how far students thought they would go in their education (Lee, Hill, & Hawkins, 2012; O'Hara et al., 2012; Wood et al., 2011). Expectations are influenced by previous experiences such as racial discrimination (Solorzano et al., 2000). Conversely, expectations have a strong influence on academic performance. In previous research, expectations served as a predictor of persistence through high school and enrollment in college (Lee et al., 2012). This study added to the literature by applying this theory to African American college students. Specifically, the study examined African American college students' expectations of their academic performance in the university setting. Given how important expectations are for academic achievement, they have been examined in several studies (Alexander, Brock, & Entwisle, 2008; Defreitas, 2012; Lee et al., 2012; Wood et al., 2011).

For example, Lee and colleagues (2012) examined how expectations for educational success

explained future educational attainment. Individuals in the study fell into one of four profiles based on the trajectory of their expectations: individuals in the stable high group (66.8%) had expectations that were consistently high. The decreaser group (15.6%) started with high expectations that decreased over time. Individuals in the low stable group (8.8%) had consistently low expectations. Participants with expectations that started low and increased fell into the increaser group (8.8%). Individuals from low income families were less likely to be in the stable high group and more likely to be in the low stable and decreasing groups. Individuals in the stable high and increaser groups were more likely to graduate from high school and earn higher incomes in adulthood. While expectations have generally been demonstrated as an important factor for academic success, it is particularly important for African Americans.

Previous research has suggested African American students' expectations for educational success positively impact their academic performance (Alexander et al., 2008; Defreitas, 2012; Lee et al., 2012; Wood et al., 2011). DeFreitas found that expectations for educational success were more important for academic achievement (i.e., higher GPA) among African American college students than for European American college students. Wood and colleagues found that expectations for educational success predicted on-time educational progress for African American male students. These scholars also found that higher parental educational attainment was related to higher expectations for students. Consistent with the findings of Lee and colleagues, Alexander, Bozick, and Entwisle (2008) found that African Americans who either attended a four-year college or graduated from a four-year college were more likely to have expectations of their academic success that remained high from high school through college. These previous studies highlight the importance of examining the role that expectations play in the academic performance of African American college students.

The Current Study

The purpose of this study was to examine the process through which racial discrimination negatively impacts expectations for educational success and academic performance over time for African American college students. According to expectancy-value theory (Eccles et al., 1983), expectations for educational success influence academic performance: higher expectations lead to improved performance (Alexander et al., 2008; Defreitas, 2012; Lee et al., 2012; Wood et al., 2011). Furthermore, expectations for educational success are in turn influenced by previous experiences. Other factors such as family educational background, family income, and gender should be considered as well. For example, individuals from families with higher educational attainment and income have higher expectations (Lee et al., 2012; Wood et al., 2011). Research has also suggested female students have higher expectations for educational success than male students (Wood et al., 2011). Given that racial discrimination lowers expectations and negatively impacts performance, as well as the evidence suggesting that expectations predict academic performance, it is important to examine whether the effect of racial discrimination on academic performance can be explained by students' expectations for success. To examine this effect, the study sought to test three hypotheses.

First, it was hypothesized that greater endorsement of racial discrimination experiences occurring on campus would be related to lower expectations for educational success. Second, it was expected that higher expectations for educational success were predictive of higher academic performance. Third, the researcher expected to find expectations for educational success would mediate the relationship between perceptions of racial discrimination and academic performance.

Method

Participants

Participants for this study came from a secondary dataset: the Maryland Adolescent Development in Context Study (Eccles, 1997), a longitudinal study that sought to examine the pathways of successful development through adolescence. Permission was acquired from the study administrators to use the dataset. The current study examined three waves of collected data: Wave 4 (11th grade), Wave 5 (one year after high school), and Wave 6 (three years after

high school). The current study sample consisted of 162 African American college students (51 men, 108 women, 3 did not report their gender). Participants in this study met the following inclusion criteria: self-identified as African American, participated in both Waves 5 and 6, and enrolled as a full-time college student during both Waves 5 and 6. The mean age of the sample at the time of Wave 5 was approximately 19 years old (M = 19.03, SD = 0.30). Approximately one-third (33.8%) of the sample came from families in which the highest parental education level was at least a bachelor's degree. Individuals who came from households in which the highest parental education was a high school degree made up 27.5% of the sample. A large percentage of the sample came from families with a total annual income of over $50,000 (66.9%).

Procedures

Recruitment began with mailed letters to participants' families during the seventh grade. Families who expressed interest were asked to sign and submit a consent form. Four waves of data collection took place throughout the adolescents' time in middle school and high school: seventh grade, summer after seventh grade, eighth grade, and 11th grade. Two waves of data collection took place after high school: one year after graduation and three years after graduation. Face-to-face interviews were conducted with families and participants also completed self-administered questionnaires. Face-to-face interviews took approximately one hour to complete and the questionnaires took about 30 minutes. The first four waves collected data from adolescents and their families; the last two waves of data were collected only from the participants. Participants received monetary compensation after each wave.

Measures

Covariates. Demographic information from the adolescents and their families were considered for use as statistical controls. Gender and total family income were used as covariates. Participants' perceptions of the importance and value of their education at the time of eleventh grade were used as a covariate as well. These perceptions were assessed with three items that asked students how important they thought their education was (e.g., "I must do well in school for success in life). The items were scored on a 5-point scale (1 = *Strongly Agree* to 5 = *Strongly Disagree*). Items were reverse coded. Higher scores indicated a greater perception of the importance of school. College grade point average after the first year was used as a covariate as well. Table 1 illustrates the waves in which data for each measure was collected.

Table 1
Study Variables by Wave of Data Collection

	Wave	Time
Gender	1	6th grade
Total Family Income	1	6th grade
Perceived Importance of Schooling	4	11th grade
Previous College GPA	5	1 year after HS
Racial Discrimination	5	1 year after HS
Educational Expectations	5	1 year after HS
Current College GPA	6	3 years after HS

Equal Treatment of the Races at College. Racial discrimination during college was measured using a 7-item scale developed for the study (α = .75; Eccles, 1997). The measure assessed students' perceptions of equal treatment of students of different races at their college (e.g., "All students at my college are treated equally"). Responses were collected during Wave 5 and the items were scored on a 5-point scale (1 = Strongly Agree to 5 = Strongly Disagree). Higher scores indicated a greater perception of unequal treatment based on race.

Expectation to Perform Well Academically. Expectations for educational success during college were measured using a 6-item scale developed for the study (α = .86; Eccles, 1997). The measure assessed how well students expected to perform academically in college (e.g. "I expect to do well in my college classes"). Responses were collected during Wave 5 and the items were scored on a 5-point scale (1 = *Strongly Agree* to 5 = *Strongly Disagree*). Items were reverse coded. Higher scores indicated greater expectations of academic success.

Academic performance. Academic performance

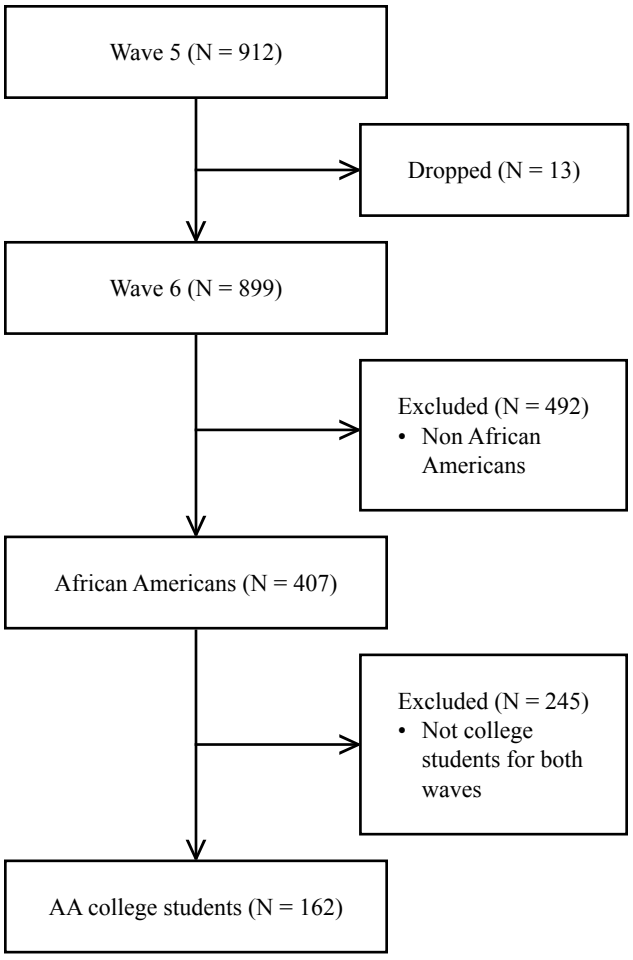

Figure 1. Consort diagram for attrition and retention of participants.

was measured using students' self-reported grade point average at the time of Wave 6. The grade point average was calculated on a 4.0 scale.

Results

Missing Data

Figure 1 illustrates the attrition of individuals throughout the study and exclusion of individuals who did not meet the selection criteria of the current study (i.e., African American, participated in Waves 5 and 6, full-time college student in Waves 5 and 6). Based on the variables included in the analysis, cases with complete data comprised 68.52% of the cases. Of all the values, based on cases and variables, 90.25% contained data. Missing data was accounted for using full information maximum likelihood estimation.

Preliminary Analyses

Preliminary analyses were conducted using SPSS. At Wave 4, students on average thought that their education would be very valuable or important (M = 4.46, SD = 0.54). At Wave 5, students' self-reported GPA was 2.79 (SD = 0.61). Students reported moderately low perceptions of racial discrimination (M = 2.32, SD = 0.62) and moderately high expectations for educational success (M = 4.04, SD = 0.68). Students' self-reported GPA was 3.00 at Wave 6. (SD = 0.42). Independent sample T-test analyses were conducted to determine if there were gender differences in expectations for educational success or academic performance. There were no significant differences in the means of the variables when divided by gender.

Table 2 illustrates the correlations between study variables. Parental educational level was positively correlated with total family income, $r(160) = .19$, $p < .05$. Academic performance at Wave 5 was positively related to academic performance at Wave 6, $r(160) = .32$, $p < .001$. Perceived value of education at the time of Wave 4 was significantly positively correlated with expectations for educational success at Wave 5, $r(160) = .18$, $p < .05$. Perceived racial discrimination at Wave 5 was negatively related to expectations for educational success, $r(160) = -.25$, $p < .01$. Perceived racial discrimination was positively related to academic performance at Wave 6, $r(160) = .23$, $p < .05$. Expectations for educational success were positively correlated with academic performance at Wave 5 and Wave 6 respectively, $r(160) = .32$, $p = .00$; $r(160) = .23$, $p < .05$.

Mediation Model

The study employed path analysis in MPlus 7.0 to test mediation. Mediation analyses were conducted to examine the indirect effect of racial discrimination on academic performance through expectations for educational success. Fit indices indicated that the model was a good fit (RMSEA < .05, CFI > .95, SRMR < .08). The paths from gender and total family income to expectations for educational success were

Table 2
Intercorrelations Among Study Variables

	1	2	3	4	5	6	7
1. Parental Education Level	–						
2. Total Family Income	.19*	–					
3. Perceived Value of Education	.11	.01	–				
4. Previous College GPA	.14	.05	.17*	–			
5. Racial Discrimination	.05	-.02	.04	.00	–		
6. Expectations for educational success	.09	.10	.18	.32**	-.25**	–	
7. Current college GPA	.12	.13	.03	.32**	.17*	.23**	–

Note. *$p < .05$, **$p < .01$

not significant. The path from perceived value of education to expectations for educational success was also not significant. There was a significant path from academic performance at Wave 5 to expectations for educational success, $\beta = .30$, $t = 3.36$, $p < .01$. Previous academic performance positively predicted expectations for educational success. The path from racial discrimination to expectations for educational success was significant, $\beta = -.26$, $t = -2.42$, $p < .05$. Perceptions of racial discrimination negatively predicted expectations for educational success.

Gender was a significant predictor of academic performance at Wave 6, $\beta = .17$, $t = 1.98$, $p < .05$. The paths from academic performance in Wave 5, total family income, and perceived value of education to academic performance in Wave 6 were not significant. The path from expectations for educational success to academic performance was significant, $\beta = .27$, $t = 3.11$, $p < .01$. Expectations for educational success positively predicted academic performance. The direct path from racial discrimination to academic performance was significant, $\beta = .25$, $t = 2.73$, $p < .01$. Racial discrimination positively predicted academic performance. The indirect path from racial discrimination to academic performance via expectations for educational success was significant, $ab = -.07$, *95% CI*: [-.14, -.001], $p < .05$. Racial discrimination negatively predicted academic performance through the relationship with expectations for educational success.

Discussion

Racial discrimination in the college setting is an issue as it relates to the academic outcomes of African Americans (Reynolds et al. 2010). Such discriminatory experiences have a negative impact on African Americans' expectations for success and their academic performance (Eccles, Wong, & Peck, 2006; Solorzano et al., 2000). Given that expectations could be impacted by racial discrimination experiences and these expectations influence later performance, the current study aimed to examine whether there was a significant indirect effect of racial discrimination on academic performance via expectations for educational success.

Racial Discrimination and Expectations for Educational Success

Research suggests that experiences with racism on college campuses negatively impact African American students' expectations of academic success (Solorzano et al., 2000). Based on this body of research, the researcher expected perceptions of racial discrimination would be negatively related to expectations for educational success. Greater perceptions of racial discrimination in the college setting were related to lower expectations for educational success in college. The findings suggest that the more students perceive unequal treatment based on race, the lower their expectation of academic success. African American college students may come

to expect less success if they perceive that they may be treated unfairly. This is consistent with expectancy-value theory (Eccles et al., 1983), which posits that previous experiences influence expectations for academic success. Given that racial discrimination in the educational setting can manifest in the form of negative expectations from teachers (Howard, 2003; Solorzano et al., 2000) and that the expectations of others impact those of students (Eccles et al., 1983), it is expected that racial discrimination in the educational context would adversely affect students' attitudes. This is also consistent with previous findings (Eccles et al., 2006; Wang & Huguley, 2012) that suggested that teacher discrimination negatively impacts the academic attitudes of African American students. The results resonate even more with the findings of Solorzano and colleagues (2000) in which African American college students talked about the negative effects that teachers' low expectations had on their attitudes, especially their expectations to succeed.

Additionally, the measure used to assess racial discrimination also included items reflecting institutional racism and discrimination in addition to those reflecting interpersonal experiences with discrimination. Given this, the findings are also consistent with those of Reynolds and colleagues (2010) who found that institutional racism in college was negatively related to the motivation of African American college students. Overall, the current study's findings suggest that racial discrimination experiences at both an institutional level and at an interpersonal level are related to negative academic attitudes, particularly expectations for educational success, for African American students.

Expectations for Educational Success and Academic Performance

The researcher predicted that expectations for educational success would be positively related to academic performance. Results suggested higher expectations for academic success predicted higher academic performance two years later. This finding is also consistent with expectancy-value theory, which posits the influence that expectations have on future academic performance (Eccles et al., 1983). The results of the current study were consistent with previous empirical research suggesting that higher expectations of academic success promote improved academic performance (Lee at al., 2012; Wood et al., 2011). For example, DeFreitas (2012) African Americans who enrolled in or graduated from a four-year college by the age of 22 were more likely to have consistently high expectations throughout high school and college and that expectations predicted their academic performance.

Indirect Effect of Racial Discrimination

It was predicted that perceptions of racial discrimination would have a significant indirect effect on academic performance via expectations for educational success. Greater perceptions of racial discrimination in the college setting negatively impacted academic performance two years later through the negative impact on students' expectations for educational success. This finding is not surprising given the theoretical evidence as well as the support of the two prior hypotheses discussed and is consistent with expectancy-value theory (Eccles et al., 1983). Educational experiences influence students' expectations of academic success, which in turn predict their academic performance. The findings suggest that perceptions of racial discrimination lower the expectations for educational success of African American college students. These lowered expectations then became a hindrance to their future academic performance.

Limitations and Future Directions

There were several limitations of the study. All the participants from the sample came from the same region of the country so the results from this sample may not be generalizable to the larger population. Future studies could include a more geographically diverse sample that would be more representative of the larger population. Also, future studies could include information about the racial makeup of students' colleges or universities. Scholars have found that for African American students at predominantly White institutions, the perceived fit between their ethnicity and the school environment was positively related to their sense of academic competence (Chavous, Rivas, Green, & Helaire, 2002).

Another limitation is the use of self-reported measures in the current study. Racial discrimination as measured assessed individual perceptions of discrimination. Racial discrimination in fact is not the same as perceived racial discrimination. In other words, what is perceived as discrimination may not actually be discrimination. There could be other factors that influence students' perceptions of the discrimination that they may or not be experiencing. Measures such as students' expectations could only be truly assessed by asking the individual who holds the expectations, but other variables such as academic performance and racial discrimination could be assessed with multiple reporters. Examples may include school transcripts and reports from teachers and administrators about the racial climate on campus.

Additionally, future studies could incorporate the teachers' expectations of students' performance as reported by the teachers themselves. Such studies could identify how much professors contribute to the expectations of their students as well as the relationship between racial discrimination and the expectations of teachers. The findings could be used to determine areas of improvement for teachers and how they relate to their African American students. Future studies could include other indicators of academic success such as persistence or enrollment into college. It is important to determine how racial discrimination impacts students' decisions to either enroll in or persist through college. Related to this point, future studies could include non-college students to determine if a similar pathway emerges.

Significance and Contributions

This research makes several contributions to the literature. First, the study employs a longitudinal design that helps to examine the impact that racial discrimination has on African American college students over time. Furthermore, it suggests that racial discrimination does not end in high school, but rather it persists and continues to have deleterious effects on academic attitudes and performance. The study also contributes to the literature, specifically expectancy-value theory, by considering how culturally relevant experiences for African Americans relate to their academic performance and attitudes. The theory is also advanced by applying it longitudinally to college students, as most studies using the theory examined pathways both during secondary school and over time from secondary to post-secondary school.

Additionally, using a mediation model allows for an examination of the process through which racial discrimination negatively influences academic performance, highlighting how it negatively impacts performance by lowering the expectations for success of college students. Such findings could influence policies and practices at the collegiate level. Teachers and administrators could use this information to help make the environments of colleges more welcoming, supportive, and safe for African American students. Such practices would likely have positive effects for students from other ethnic backgrounds as well. It is important for students of backgrounds to believe that they have an equal opportunity to succeed in college and it is additionally important for colleges to ensure those equal opportunities.

It is also vital to consider the importance of expectations for educational success and how those expectations influence academic performance. Expectations are much more malleable than indicators of performance such as grades; it is easier to change attitudes first than it is to change performance without considering the attitudes that influence performance. Previous research has illustrated that expectations for educational success are much more important for African American students than their European American counterparts (DeFreitas, 2012). While the study demonstrates the harmful effects of racial discrimination, it also suggests the importance of expectations for African American students. Although racial discrimination had a negative impact on the attitudes and performance of African American college students, their expectations were still moderately high and they still performed relatively well. This could suggest that if expectations remain high, then they will still be able to perform at a satisfactory level despite the racial discrimination they perceive or experience. Aside from making the college campus a more racially inclusive environment, efforts should be made to ensure that students will be able to perform at a high level and believe they can do so.

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The Ψ-Files: A Review of the Psychological Literature Regarding False Memories of Alien Abduction

Joshua D. Finkelstein
The New School for Social Research

Memories of alien abduction present researchers with a unique opportunity to explore memories for events which, in all likelihood, did not occur. In this review of the literature, the factors which can lead to the development of abduction memories are explored. These include personality and psychopathology variables, as well as instances of sleep paralysis, and the effects of hypnosis and memory implantation. In the end, while the events abductees report are unlikely to have occurred, the earnestness with which they endorse these memories is a strong indicator that memory is a malleable and complicated phenomenon, with implications for a wide range of psychological topics.

Keywords: alien abduction, false memories, recovered memories

Imagine yourself in bed. It is early morning; the sun has not yet risen above the horizon but a dim glow can be seen—a harbinger of the light to come. The room is still, a brief respite from the tumult of the day, as you turn over in bed. Your eyes flutter and you begin to open them —the start to every normal day of your life. But this day is not normal. Your body feels heavy, unable to move and you can hear noises, even in the stillness of the daybreak. A bright light flashes somewhere close, perhaps over by the window? Suddenly, you become aware that you are not alone in your room. There are figures, shadowy, dim and distant—yet somehow, at the same time, all too close. They are around you. Terrified, you attempt to rise from the bed, but your mysterious paralysis has not abated. Your heart races and you feel sensations pulsing through your body, things you have never felt before…Then suddenly, as mysteriously as it all began, it is over. Your body is back under your control. Rising from your bed, you shudder at what has just happened. Perhaps you are sick. Perhaps there is something wrong with your brain, your nerves, or your neurochemistry. Perhaps you imagine that you have been visited by angels or spirits of your departed loved ones. Or perhaps you believe that you were abducted by extraterrestrials.

Corresponding author:
Joshua Finkelstein, finkj400@newschool.edu

Extraterrestrials, their vehicles (often described as Unidentified Flying Objects or UFOs), and their interactions with human beings (in the form of abduction) have been an important part of Western culture since the end of World War II (Spanos, Cross, Dickson, & DuBreuil, 1993). Much of the research into the phenomena surrounding extraterrestrials, or "space aliens," has focused on attempts to either prove or disprove their existence. Modern science takes the existence of extraterrestrial life, somewhere in the infinity of the universe—perhaps in unintelligent forms—very seriously. However, the mainstream has less respect for the claims of alien abduction, as the profound lack of evidence for such a phenomenon leads many to conclude that it simply does not occur (Sheaffer, 1981). That being said, the accounts of those who claim to have been abducted by aliens should not be ignored—not for what we can learn about the stars, but for what we can learn about our own psychology.

Memories of alien abduction have been taken quite seriously by a small contingent of cognitive and social psychologists, notably Elizabeth Loftus and Roy Baumeister (Loftus, 1993; Newman & Baumeister, 1996). In general, the limited literature centers around the psychological mechanisms involved in generating false memories of alien abduction. This review will explore the relevant research surrounding this

phenomenon. First, however, I will describe the topic of investigation and the patterns that often arise when abductees report their experiences. After depicting the form memories of alien abductions generally take, I will explore the research literature on the creation of these memories.

A Pattern of the Phenomena

According to Roy Baumeister, alien abduction phenomena generally follow a certain pattern; though he points out that no two accounts are ever exactly alike. Generally, abduction accounts begin with abductees reporting the sight of a UFO or other mysterious 'lights in the sky.' Occasionally, the beginning of the story is marked simply with seeing a bright light while some accounts begin directly with the observation of strange alien beings (Newman & Baumeister, 1996). Throughout most of the ordeal, abductees report being paralyzed or otherwise immobilized. Often, abductees describe being in a medical examination room of some kind, sometimes dressed while other times unclothed. Abductees almost always report being subjected to painful medical or physiological examinations, with their genitals receiving special attention from the aliens. Following the examination, it is not uncommon for abductees to report that their memories of the events were erased by the aliens. In some cases, the experience ends with a tour of the UFO itself or even a tour of the alien's home-planet—though it is far from the majority of abductees who report such jovial interactions with their captors (Newman & Baumeister, 1996).

Newman and Baumeister also point out that there are similarities in the narratives of abductees regarding the recovery of their abduction memories (1996). Alien abduction memories are rarely reported as being spontaneously recovered, as is the case with other forms of recovered memories− including those related to sexual abuse (Loftus, 1993). Abductees often claim to experience a wide range of psychological and physiological maladies for which they seek treatment. Examples include anxieties, specific phobias, frequent nightmares, disturbing thoughts, various aches and pains, and an experience of "missing time," a sensation of temporal disunity between memories (Appelle, Lynn, Newman, & Malaktaris, 2014). Newman and Baumeister report that abductees tend to seek treatment from hypnotherapists or other mental health professionals who focus on recovering memories, as they often interpret their 'missing time' experience as a memory problem.

Interestingly, abductees also tend to report their abduction as a positive, life-changing experience. Susan Clancy reports in her book, *Abducted: How People Come to Believe They Were Kidnapped by Aliens*, that she interviewed abductees with the question "if you could do it all over again, would you choose *not* to be abducted?" No one said "yes" (Clancy, 2007). In fact, many abductees claim that their experiences were life-affirming in some way, in spite of the generally frightening, abusive, invasive, and occasionally violent nature of their experiences (Appelle et al., 2014). Clancy suggests that this positivity, even in the face of such terror, is related to the human need to believe in something; she writes:

> People go through life trying on belief systems for size. Some of these belief systems speak to powerful emotional needs that have little to do with science— the need to feel less alone in the world, the desire to have special powers or abilities, the longing to know that there is something out there, something more important than you that's watching over you…For many people, belief in alien abduction gratifies spiritual hungers. It reassures them about their place in the universe and their own significance (p. 150).

Despite all the elaborate effects and deep, personal meaning these memories have, the evidence seems to support the notion that the memories are not for events which have actually occurred.

The Generation Question

False memory generation has been a contentious topic in both popular and scientific literature since the publication of *The Courage to Heal: A Guide for Women Survivors of Child Sexual Abuse* (Bass & Davis, 1988), though the notion that individuals can entirely forget traumatic events has far earlier roots (Breuer & Freud, 1957; Sandler & Freud, 1985). The debate generally centers around a question of reliability and the notion that a single memory can

either be false or recovered, but not both. Specifically, are observable instances of "recovered memories" authentic? If not, are they examples of willful fraud on the part of those involved, or are they manifestations of other, involuntary mechanisms over which the victim has no control? Based on available evidence, the latter answer seems most probable leading the discussion to generally focus on the notion of "false" memory (Loftus, 1993; Clancy & McNally, 2006). It is within this area that the research surrounding alien abduction tends to focus.

Many theories have been put forward to explain the alien abduction phenomena, however, the bulk of the literature suggests a general pattern which I propose involves four steps. First, the individual who will become the abductee has a general interest in U.F.Os, extraterrestrials, or other paranormal phenomena (Fiore, 1990; Newman & Baumeister, 1996). Then, there must be a catalyst event, often sleep paralysis with hypnopompic, or upon waking, hallucinations (Cheyne, 2005; McNally & Clancy, 2005; Appelle, et al. 2014). Next, the individual interprets their experience in line with their preexisting beliefs about extraterrestrials (McNally & Clancy, 2005). Finally, the individual seeks out professional help in dealing with residual symptomology related to their catalyst event, such as a memory of hypnopompic hallucinations (Newman & Baumeister). Often, abductees seek out hypnotherapists who accidently implant detailed false memories of the abduction into the minds of the abductees while attempting to "recover" the repressed memories of the abduction (Mazzoni, Loftus, and Kirsch, 2001).

Personality and Psychopathology Variables

A common and cursory explanation for alien abduction phenomena is to describe some sort of deficiency in the abductee's personhood, often dismissing their accounts. However, the research literature is divided regarding how personality and psychopathological variables affect the likelihood that individuals will develop false memories of alien abduction. McNally and Clancy subjected a sample of ten abductees to a battery of psychological measures, aiming at assessing their psychological health and well-being (McNally & Clancy, 2005). They showed that the mental health of abductees does not seem to differ dramatically from the general population. Four out of the ten abductees interviewed never qualified for a DSM-IV diagnosis. Other abductees qualified for specific phobia for insects, anxiety disorder related to alcohol dependency, bipolar disorder Not Otherwise Specified (NOS), present post-traumatic stress disorder (PTSD), past PTSD, and panic disorder. None of the abductees interviewed by McNally and Clancy qualified for Schizophrenia. Additionally, the abductees mean depression and anxiety scores were within normal limits (McNally & Clancy, 2005).

Areas where abductees differed from the general population included scores on the Dissociative Experiences Scale, the Absorption Scale, and the Magical Ideation Scale. The Dissociative Experiences Scale was designed to tap into alterations in consciousness ranging from the mundane, such as zoning out while driving, to the surreal, like not being able to recognize one's reflection in a mirror. The Absorption Scale, on the other hand, taps into an individual's proneness to become absorbed in imaginary experiences, such as reading a novel or watching a movie. The Magical Ideation Scale assesses individual beliefs in paranormal phenomena such as ghosts, aliens, psychic powers, and the existence of magic. McNally and Clancy report that the abductees scored significantly higher than a control group on all three measures (2005). The findings of this study were consistent with earlier work by Clancy and her research team, which also showed that individuals who report repressed and recovered memories of alien abduction score higher than controls on measures of hypnotic suggestibility (Clancy, McNally, Schacter, Lenzenweger, & Pitman, 2002).

In 2008, Hough and Rogers conducted a survey to examine the personality variables (including measures of fantasy proneness and emotional intelligence) of 26 abductees and compared them to 26 non-abductees. The Creative Experiences Questionnaire was used to assess fantasy proneness, while the Self-Report Emotional Intelligence Test-short version was used to measure emotional intelligence. The big five personality factors were then assessed using the Ten-Item Personality Inventory (TIPI). Interestingly, Hough and Rogers reported no significant differences between the abductees and the non-abductees on any of their self-report measures (2008). This finding

lead the researchers to conclude that there is little difference, at least in terms of the measures utilized in their study, between abductees and the general population, in direct contradiction to the findings by Clancy and colleagues (2002).

Given the generally incongruous findings of Clancy and colleagues (2002) when compared with Hough and Rogers (2008), the issue of the role that personality and psychopathology play in alien abduction phenomena has not been resolved. However, it seems logical to presume that individual factors do have an impact on such phenomena in some ways. Generally, individuals who claim to have been abducted by aliens demonstrate a pre-abduction interest in UFOs or aliens. In addition, abductees then tend to seek out a therapist who is, like them, interested in paranormal phenomena. Of the 13 cases of alien abduction presented by Fiore, a psychotherapist specializing in recovering memories of alien abduction, four patients had read books about alien abduction, one had attended a seminar on UFO phenomena, and five reported a long-standing interest in aliens (Fiore, 1990). There does appear to be a relationship between disassociation, absorption and magical ideation, and abduction phenomena. However, it is clear from these studies that individuals who claim to have been abducted by aliens are not mentally ill, as some might be quick to assume.

Sleep Paralysis and Hypnopompic Hallucinations

The literature suggests that the formation of false memories of alien abduction involves a catalyst event, often an episode of sleep paralysis (McNally & Clancy, 2005). Sleep paralysis is a non-pathological phenomenon which occurs because of a temporary discordance in rapid eye movement (REM) sleep, the stage of sleep in which most dreaming occurs. This discordance during sleep paralysis causes sensory input to be blocked and motor output to be inhibited. This combination causes the sufferer to experience paralysis while simultaneously experiencing their internal dream stimuli as external sensory stimuli (McNally & Clancy, 2005). The experience is fairly common, with approximately 30% of the population experiencing at least one instance of sleep paralysis in their lifetime with around 5% experiencing vivid visual, auditory, and tactile hallucinations in all three sensory modalities. About 75% of those who report an instance of sleep paralysis experienced hallucinations in only one or two sensory modalities (Cheyne, 2005). Sleep paralysis and corresponding hypnopompic (upon waking) hallucinations, being unusual and often highly stressful experiences, have gained attention as an explanation for alien abduction phenomena, most notably in the work of Susan Clancy (2007).

Sleep paralysis events are often categorized into three different groups based on their qualities: intruder, incubus, and vestibular-motor (Cheyne, 2005). Intruder hallucinations typically include the sense of a threatening presence in the room, as well as hearing strange noises, footsteps, voices, and the physical sensations of being touched. Incubus hallucinations, on the other hand, include breathing difficulties or feeling suffocated, as well as a variety of physical sensations and the feeling of impending death or bodily harm. Vestibular-motor hallucinations often manifest as sensations of movement, such as falling or accelerating upward out of the bed. Of these three types, intruder and incubus types are heavily implicated in alien abduction phenomena (Appelle, et al. 2014).

McNally and Clancy (2005) explored the relationship between sleep paralysis and alien abduction accounts by interviewing ten abductees who described their abduction experiences in terms congruent with experiences of sleep paralysis. Collectively, the abductees reported feeling "electrical sensations (sometimes painful), seeing alien beings in the bedroom, seeing flashing lights or glowing objects, and feelings of levitating off the bed" (McNally & Clancy, p.115). The abductees reported hallucinations in one or more sensory modalities, including visual, auditory, and tactile. All these elements are consistent with various types of sleep paralysis hallucinations, as well as the prevalence rates of sleep paralysis as described by Cheyne (2005).

While abductees then went on to report more detailed experiences, including descriptions of what the aliens looked like, sexual encounters with the extraterrestrials, and in some cases even being introduced to their hybrid human-alien offspring, McNally and Clancy (2005) point out that all of this extra material was only "recovered" by the individual following hypnotherapy. Additionally,

one abductee reported that she initially experienced the bedroom intruders as angels and that it was only after discussing the experience with a friend did she reinterpret the events as involving aliens. Sleep paralysis might serve as a catalyst experience which through later interpretation is remembered as alien abduction, often with the assistance of hypnotherapy (McNally & Clancy).

False Memory Implantation

As described in Newman and Baumeister (1996), abductees tend to seek counseling for their experiences from mental health practitioners who specialize in hypnosis and/or recovering memory. Without calling too much into question the validity of these practices, as they are often conducted with an earnest desire to help the patient, experimental psychology has shown that it is relatively easy to implant false memories into individual's minds. Loftus and Pickrell (1994) were famously able to implant false memories of getting lost in a shopping mall by providing participants with descriptions of three true events and one false event (getting lost in the mall). After having participants write about all four events over the course of five days, they found that participants developed detailed false memories of getting lost in the mall in their childhood. Further, Wade and colleagues showed that, when presented with doctored photographs of a hot air balloon ride, participants generated detailed false memories of themselves riding in a hot air balloon following a guided-imagery exercise (2002).

Yet there is a fundamental difference between false memories of getting lost in a shopping mall or of taking a hot air balloon ride and false memories of alien abduction. Namely, getting lost and balloon rides are plausible events that could most certainly happen, while being abducted by aliens is understood to be implausible. One might imagine that implanting false memories of implausible events is difficult, yet researchers Mazzoni, Loftus, and Kirsch accomplished it in a study examining the manipulation of the perceived likelihood of events (2001). In their study, Mazzoni, Loftus, and Kirsch broke the participants into three groups: a control group, a plausibility group, and an implausibility group. Participants were first asked to rate 40 events on their plausibility or implausibility. Participants were then asked to complete the Life Events Inventory, which contained 36 of the 40 events from the previous rating exercise. For each event, participants were asked to rate how "certain" they were that it had happened to them before the age of three. Then over the course of several weeks, participants in the plausibility and implausibility groups read 12 "mini-articles" related to four different topics (the control group skipped this step). In the plausibility group, three of the articles had to do with swallowing various objects and subsequently choking on them while in the implausibility group, three of the articles had to do with witnessing an individual become "possessed." Finally, participants were asked to rate the plausibility of the 40 events from the previous phase of the study and again to complete the Life Events Inventory on the same selection of 36 events (Mazzoni, Loftus, and Kirsch, 2001). Mazzoni, Loftus, and Kirsch found that their two-part suggestion technique not only increased the likelihood that participants would perceive plausible events (choking on something) as having happened to them, but also increase the likelihood of participants perceiving completely implausible events (like witnessing possession) as having happened to them. These findings show that suggestive information can increase the "plausibility" of an implausible event, as well as increase individuals' rating of the likelihood of having witnessed the event happen at some point in their lives (2001).

Implanting Memories for Alien Abduction

The previous study by Mazzoni, Loftus, and Kirsch (2001) showed that individuals, by reading articles describing implausible phenomena, are more likely to rate those phenomena as having happened to them. Yet it is a leap to suggest that perceiving unlikely events as "plausible" is the same as reporting actual false memories of such an event, like being abducted by aliens. Otgaar, Candel, Merckelbach, and Wade (2009) attempted to implant memories of alien abduction phenomena specifically, paying special attention to the ways in which their participants described the implausible event in an interview setting. Otgarr and colleagues used children as their participants, as children are particularly prone to generate false memories. Using fake newspaper articles, the researchers were successfully able to

implant memoires of alien abduction into children ages seven to twelve, though younger children were more likely to report false memories than older children.

The study began with the children being individually interviewed regarding their memory for when they were four years old. First, the children were told either a true or false narrative. True narratives described an event from the child's first day of school and were obtained by the researchers via the parents of the children. False narratives involved either being abducted by a UFO or an instance where the child choked on a candy. The children were then told to report everything that they could remember from the time when they were four years old and to help them, the interviewer would read aloud a newspaper article which was published at the time. The article either describe a UFO being sighted nearby where the child grew up and hinted at people being abducted by it or contained only mundane information. Children who were unable to provide information from when they were four were then prompted with the phrase "many people can't recall certain events because they haven't thought about them for such a long time. Please concentrate and try again" (Otgaar, Candel, Merckelbach, & Wade, 2009).

If the children could did not recall any further details, the interviewer used retrieval techniques, such as context reinstatement and guided imagery, as methods to take the children "mentally back to the scene of the event." The children were told to close their eyes and to think about their feelings, the people who were with them, and the time of the year. Following this, children were asked again to recall any details about the event. After this period of further probing, if the children were unable to recall details from the event, the interview was terminated. The child was then prompted to think about the events discussed everyday over the week between the first and second interviews. The second interview followed the same procedure as the first. The interviews were videotaped, transcribed, and coded using criteria developed by Lindsay, Hagen, Read, Wade, and Garry (2004) in their famous study of the effect of photographs on false memory production.

Otgaar and colleagues reported that an astonishing number of the children in the study reported false memories. Thirty-three percent developed false memories during the first interview, claiming to have remembered the events before the use of guided imagery and context reinstatement. An additional 6%, leading to a total of 36%, of the children remembered the events at the second interview, though the researchers suggest that this number should be higher because a number of children reported in the second interview that they discussed the false events with their parents in the intervening week (Otgaar, Candel, Merckelbach, & Wade, 2009). Age was a factor in the findings, as younger children were more likely to develop the false memory than older children. Additionally, Otgaar and colleagues report that there was no difference in false memory development rates between the plausible and implausible groups; children were equally likely to develop a false memory for being abducted by aliens as they were for choking on a candy.

Laboratory studies that examine false memory implantation often make use of the same, or similar techniques, as hypnotherapists, such as context reinstatement and guided imagery (Newman & Baumeister, 1996). Extrapolating laboratory findings to the clinical setting casts doubt on the authenticity of the "recovered" memories found through hypnotherapy. One explanation of the alien abduction phenomena is that "recovered" memories of such events are false memories, implanted in the abductee during hypnotherapy sessions. As abductees tend to seek out hypnotherapists who share their belief in extraterrestrials, and thus encounter abduction phenomena material during hypnotherapy, it comes as no surprise that the implanting of false memories of alien abduction does occur. It appears likely that memories of alien abduction are, in fact, false memories implanted during the therapy sessions meant to help the abductee.

Implications for Further Research

Much of the current research into false memories for alien abduction has focused on the question of generation. However, there is far less research into mechanisms by which these memories are maintained. Newman and Baumeister (1996) proposed the "Cognitive-Motivational" hypothesis, which attempted to explain abductees continued endorsement of their abduction memories. Per the Cognitive-Motivation hypothesis,

alien abduction memories are maintained as escape-from-self narratives and represent a masochistic wish to experience pain, powerlessness, and humiliation on a grand cosmic level. While Newman and Baumeister's hypothesis makes good use of sexological and sociological data, as well as accounts of alien abduction provided by abductees, it remains unfalsifiable and outside the bounds of empirical science.

Further research into false memories of alien abduction could focus on the development of an empirically verifiable hypothesis to explain how individuals continue to endorse these highly unlikely event memories. Additionally, current studies of abductees tend to be drawn from limited samples, sometimes as few as ten (McNally & Clancy, 2005). While the abductee population is admittedly difficult to study, further research into this phenomenon should attempt to gather larger samples. Finally, while much research has implicated hypnotherapy in the creation of false memories, very little research seems to focus on the hypnotherapy itself. Hypnotherapy is a complex and multifaceted endeavor, and even hypnotherapists utilize techniques beyond hypnosis in treating their patients. Further research into the development and maintenance of false memories of alien abduction could focus on the dynamics of hypnotherapy and their contributions to the phenomenon.

Conclusions

There has been a wealth of research produced in the last several decades seeking to address the phenomena of alien abduction from a psychological perspective. While there does not appear to be any discernable difference between abductees and the general population in terms of psychopathology and personality type, there are individual factors which indicate an increased likelihood of developing false memories for alien abduction (McNally & Clancy, 2005). Chief among them is the belief and interest in paranormal phenomena, especially UFOs and extraterrestrials (Fiore, 1990). This, along with an increased susceptibility to hypnotic suggestion, can lead individuals to interpret sleep paralysis, a common non-pathological sleep disturbance which involves hallucinations and temporary paralysis, as an alien abduction event (Clancy, McNally, Schacter, Lenzenweger, & Pitman, 2002; McNally & Clancy, 2005). It then becomes possible for abductees to "recover" details of their abduction through false memory implantation, which can occur accidently over the course of hypnotherapy.

For many, the idea that alien visitors routinely visit our planet only to abduct a few people, experiment, and return them to their beds is laughable. However, the psychological exploration of the phenomena is anything but. The prevalence of false memories of alien abduction and the relative ease with which they are implanted should come across as both amazing and terrifying. If there exist people who firmly and earnestly believe their abduction narratives, in spite of their falsehood, our understanding of our systems of memory must be called into question.

Much of the false memory debate centered around the authenticity question, yet here are numerous examples of clearly inauthentic memories, which nevertheless effect those for whom they are held as true. Clancy discusses the similarities between false memories of alien abduction with their relation to sleep paralysis and recovered memories of childhood sexual abuse (McNally & Clancy, 2005). While Clancy makes it clear in her work that she is by no mean discrediting the accounts of sexual abuse which seem similar in kind to sleep paralysis events, she nevertheless points us to a resounding truth: that there is no universally correct interpretation of these events and that different individuals will interpret these events based on their own available cultural narratives. In this way, a thorough understanding of false memories for alien abduction phenomena can lead us to further developments in understanding how our memory system works.

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