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Intuition

Volume 11 Issue 2
Brigham Young University
Undergraduate Journal of Psychology

Intuition Editorial Staff

Intuition is published semi-annually by the Brigham Young University Psychology Department. Intuition is managed, edited, and designed by undergraduate students enrolled at Brigham Young University. Individuals who are interested in joining the staff are encouraged to contact the Editor-in-Chief at:

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A Note From The Editors

Psychology is so much more than just how the mind works. The psychological umbrella covers different theories, ideas, and therapies; it reaches out in a never-ending attempt to understand people in business, at home, at school, when they are alone, and when they're together.

Volume 11, issue 2 of *Intuition: Brigham Young University Undergraduate Journal of Psychology* shows the variety of psychology exceptionally well. As you read through the issue you'll learn about how company mergers affect employee happiness (Olive) and about which mindfulness-based therapies are most effective (Brimhall). Continue reading and you'll find out how beneficial touchscreen apps are for preschoolers (Andersen) and about how sleep quality is related to stress and eating disorders (Vallejo). Additionally, this issue also explores: the significant difference between student motivation in traditional and Montessori classrooms (Hale); the underlying principles of cognitive interventions that successfully reduce the effects of ego-depletion (Iglesias); the analysis of conflict between homosexuality and religion (Papa); the positive effects of combining spirituality with psychotherapy (Brown); and the increased occurrence of eating-disorder symptomatology in female, type 1 diabetic populations (Ludlow).

We understand that the publication of a journal like *Intuition* is not an isolated process, and so we say thank you to each of the authors and editors for their time and effort to make this issue of *Intuition* a reality. We also say thank you to each of our generous faculty reviewers for taking the time from busy schedules to edit for us—Professors Patrick Steffen, Brock Kirwan, Terry Seamons, Tonya Miller, Wendy Birmingham, and Sam Hardy. Our last and biggest thank-you goes to Professor Hal Miller for his invaluable guidance as *Intuition's* advisor; without Dr. Miller, Intuition would not be where it is today.

Without further ado, we present volume 11, issue 2 of *Intuition*. We hope you enjoy it.

-- Holden Brimhall and Alyson Ludlow

The Touchscreen Advantage: Understanding the Educational Value of Touchscreen Applications for Preschool-Age Children

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Abstract:
This literature review seeks to determine whether educational applications (apps) available on touchscreen devices have a positive impact on preschool children's learning. Past research has focused on the effects of devices such as computers or TVs. However, by comparing that research with new research on touchscreen devices, the potential benefits of educational apps can appear. Educational apps may be beneficial to young children by providing improved forms of interactivity.

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Recently, screen-based media have become an integral part of society. As cell phones, computers, and tablets have become more accessible to the general public, young children's accessibility to this technology also has increased. Some educational applications (apps) are designed specifically for preschool-age children. Unlike television- or video-watching, these touchscreen apps operate interactively to teach children colors, shapes, sign language and more. Although screen time can have negative effects on young children, as long as apps are not used for excessive amounts of time and a parent continues to interact with the child during app use, educational apps may have positive effects on child development.

Young Children and Apps

As touchscreen cellphones and tablets have become increasingly popular, young children have greater access to them. If touchscreens are sufficiently easy for young children to interact with, these devices may aid children's learning more than other technology does.

Touchscreen Benefits

Young children are able to use touchscreen devices with ease since they require little precise hand-eye coordination. Also, young children have a harder time using a computer

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mouse because it requires them to understand that the mouse corresponds to the cursor on the screen (Menkes, 2013). Because touchscreen devices are easier for children to use than computers are, young children may learn more from an educational app than an educational computer program that lacks touchscreen interactivity (Geist, 2012).

In addition, touchscreens provide a way for young children to use apps without having to be readers or writers (Plowman & McPake, 2012). Additionally, Geist (2012) found that young children are able to access the apps they want and interact with them by themselves. It is also the case that touchscreen devices may provide a level of interaction that educational TV does not. One study found that young children ages 30 and 36 months transferred their learning to a real-life scenario using interactive computer demonstrations with the same success as they did with real-life demonstrations (Lauricella, Pempek, Barr, & Calvert, 2010). Interactive-video demonstrations were less effective.

Length of Time

Numerous studies have shown adverse effects of increased screen viewing on young children, where screen time included TVs, DVDs, video games, and computers (see,

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e.g., Sweetser, Johnson, Ozdowska, & Wyeth, 2012). One longitudinal study examined the effects of increased screen time on children at ages 29 months, 53 months, and in the fourth grade (Pagani, Fitzpatrick, Barnett, & Dubow, 2010). The authors found that every additional hour of TV exposure at 29 months was associated with greater risk of subsequently displaying attention deficits and lower achievement in mathematics. Similarly, when children under the age of three watched two or more hours of TV daily, they tended to score lower in later tests of cognitive development and academic achievement (Duch et al., 2013a). Accordingly, the American Academy of Pediatrics (AAP) has recommended that children two and under should avoid screen time, and that children between two and five years old engage in no more than one or two hours of screen time per day (Carson & Janssen, 2012).

Even though the AAP has published guidelines for screen-media use in general; research has shown that children tend to far exceed these guidelines. For example, Zimmermann, Christakis, and Meltzoff (2007) found that, by two years of age, 90% of children had already begun watching TV. Additionally, Duch, Fisher, Ensari, Font, Harrington, Taromino, Yip, and Rodriguez (2013a) found that, in their

sample of 119 infants and toddlers, children watched an average of 3.29 hours of TV per day. Courage and Howe (2010) reported that, even though educational-interactive screen time does not produce the same negative effects as more passive forms of media do, apps should still be used conservatively, given that research has yet to indicate how much exposure causes the potential costs to outweigh the potential benefits. Falloon (2014) observed a kindergarten class's use of touchscreen devices and found that, when certain apps were repeatedly used, students became bored and no longer used the app effectively. Similarly, Hancox, Milne, and Poulton (2005) argued that preschool children's increased TV screen time could be detrimental to their development.

Effects of Different Types of Screen Time

Although research primarily has focused on the negative impacts of screen time on children's cognitive development and physical health, different types of screen time affect children differently.

Active versus Passive Screen Time

Passive screen time refers to viewing that is sedentary or that otherwise involves little interaction by the viewer, such as watching TV (Sweetser et al., 2012). Researchers have found

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a positive relation between screen time and subsequent risk of
attention problems (Pagani et al., 2010). Additionally, young
children whose screen time was passive had more difficulty
translating what they learned to a real-life setting than did
children whose screen time was active (Lauricella et al., 2010).
Educational apps can be considered active when they offer
interactivity and are cognitively involving (Sweetser et al.,
2012). Bittman, Rutherford, Brown, and Unswoth (2011)
found that among children ages four- to eight-years-old, both
reading and using a computer for purposes other than gaming
positively affected children's literacy scores; however, using
electronic games did not have this effect. Another study found
that, for boys, as time spent playing video or computer games
increased, their aggressive behaviors tended to increase, and
their school performance decreased (Hastings, Karas, Winsler,
Way, Madigan, & Tyler, 2009). On the other hand, the use
of explicitly educational games not only correlated with a
lower incidence of attention deficits but also lower aggression.
Therefore, effective educational apps must intend to support
children's learning and development in cognitively engaging
ways to avoid the negative effects of electronic games and
passive media (Chau, 2015).

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Media Designed for Children versus Adults

Zimmermann and Christakis (2007) found that, when children three and younger watched violent or nonviolent for adult media, each hour per day of average viewing was associated with double the odds for attention deficits five years later. However, the same authors also found that, when young children watched educational TV shows, there was no significant relation between time viewed and subsequent attention problems.

<div align="center">

Supported Learning

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For educational apps to have educational value for preschool children, research suggests that certain forms of support must be in place, including adult monitoring and involvement during app use. An app's design ideally provides appropriate cognitive "scaffolding" for its users.

Adult Interaction

An adult should participate in joint media engagement with their child during app use in order for it to benefit young children. Joint media engagement refers to parents and children co-viewing or co-playing during media use (as cited in Chau, 2015). Although researchers have not specifically studied parent involvement in children's app usage, researchers

have examined parent involvement in other forms of screen time. According to Mendelsohn et al. (2011), parental absence predicts children's excessive screen time. Bittman et al. (2011) asserted that the absence of interaction guided by an adult may be more harmful to children's language acquisition than overexposure to screen media. In order for educational apps to have a positive impact, preschool children need to understand how to use them. When children have questions about or need help deciphering print that appears on the touchscreen, adults can answer the questions (Neumann & Neumann, 2014). Parents also teach young children how to use touchscreen devices and apps by example. Plowman and McPake (2014) reported that young children imitated adults' interactions with touchscreen devices. For Geist (2012), such imitation means that children learn how to use the devices fairly quickly with minimal adult direction.

Yelland and Masters (2007) described cognitive scaffolding that supports preschool children's learning. Asking questions and providing positive feedback, including encouragement, was especially beneficial. Additionally, Smeets and Bus (2012) found that, when children read from an e-book that asked them comprehension questions about the material,

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they were quicker to acquire previously unknown words

(Smeets & Bus, 2012).

App Design

Apps for preschool children need what Yelland and

Masters (2007) referred to as technical scaffolding. For

example, Falloon (2014) found that, when children used apps

that had confusing instructions or goals, they often gave up

and switched to other, simpler apps. When the app provided

feedback to children's responses, for example, when learning

new words, Smeets and Bus (2012) reported that children did

better at learning the words being taught.

Apps that are advertised as educational may not

incorporate scaffolding that benefits young children. Plowman

and McPake (2014) found that, even though touchscreen

devices may promote interaction, it is not sufficient to

guarantee a high-quality learning experience. In fact, Falloon

(2014) found that many of the educational apps allegedly

designed for young children lack important learning features,

such as corrective feedback.

Conclusion

My review of the literature supports the claim that

educational apps used on touchscreen devices may avoid

at least some of the negative effects on preschool children's cognitive development that characterize other media. Because touchscreen devices typically are easy for young children to use, well-designed apps that include appropriate cognitive scaffolding may facilitate learning when used with proper adult support. Indeed, young children may be able to learn better with these kinds of devices than with other technology, such as computers or TV. Information about the measurable effects of educational apps on preschool children's cognitive development may be beneficial to parents in deciding whether or not to provide their children with access to apps and how best to interact with the child during their use.

There are several unanswered questions that future research should address. Specifically, longitudinal researchers should examine the comparative effects of apps and other forms of educational technology and develop recommendations to parents and teachers about the most effective use of touchscreen devices in their children's education.

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Sleep Quality, Stress, and Eating Disorders: A Correlational Study

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Running Head: SLEEP QUALITY, STRESS, AND EATING DISORDERS 18

Restrictive eating disorders and obesity, both extremes in the imbalanced eating behaviors spectra, are two major concerns in society. These behaviors affect the physical and psychological health of those who suffer from them. There are several factors related to these imbalanced eating patterns; sleep and stress are two major topics that have caught the attention of researchers.

Sleep affects eating. Gonnissen et al. (2000) explained that "effects of sleep fragmentation, independent of sleep duration, on appetite profiles and 24 [hour] profiles of hormones are involved in energy balance regulation" (p. 113). On the other hand, quantity of sleep also correlates with eating disturbances. In their research, Killgore et al. (2013) found that general daytime sleepiness produced low activation of the ventromedial frontal cortex. This activation, in turn, correlated directly with self-reported difficulty decreasing food intake. These findings, however, only applied to women participants. Additionally, sleep deprivation (defined as 4 hours or less of sleep per night) produces imbalances in ghrelin and leptin, which imbalance hunger and inhibit satiety, respectively. These changes lead to further imbalances in mood, anxiety, and weight management (Jean-Philippe, 2014). Amount of sleep

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can affect eating, and eating disorders can affect sleep quality (Carvalho Bos et al., 2013).

 When accounting for stress, research findings show that stress correlates with poor sleeping patterns, which in turn relates to obesity and binge eating disorder (BED). In fact, Vgontzas et al. (2008) concluded that 47% of people with obesity reported higher levels of subjective sleep disturbances when observed in a sleep laboratory and higher levels of stress based on Minnesota Multiphasic Personality Inventory-2. Several other articles support this finding by presenting psychological distress as a mediating model between daytime sleepiness and increased consumption of sweetened products. Jean-Philippe (2014) explained that "individuals who experience daytime sleepiness may consume energy-dense foods to upgrade their energy level or to alleviate their negative mood or psychological distress" (p. 88). Other studies claimed that short sleepers consume the same amount of food under stress or normal situations, whereas, the eating patterns of normal sleepers resemble those of sleep-deprived people under stress. Namely, "short sleep may produce an effect on eating that is equivalent to the ego-threat produced by the stress condition" (Dweck, Jenkins & Nolan, 2014, p.111).

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All research studies mentioned above agree that there is a correlation between sleep patterns, eating tendencies, and levels of stress. However, it is still unclear if sleep mediates stress and eating behaviors or if stress mediates sleep and eating behaviors. Understanding this relationship will be helpful for further treatment of eating disorders because more specific treatments can be developed. Moreover, knowing if sleep or stress is a mediator will allow therapists and people in general to recognize and more effectively treat their eating behaviors and thus have a healthier lifestyle.

The present study hypothesized that stress mediates sleep quality and eating behaviors.

Methods

Participants

Because women have higher rates of eating disorders than men, a sample of 60 women was recruited through Facebook (facebook.com) and byu.edu email. They were required to be between the ages of 18 and 40 years old. Anthropometric and additional information were collected during the surveys, including age, ethnicity, education level, marital status, family history of eating disorders, weight, and height.

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Materials

The surveys used were the Short Form Perceived Stress Scale (PSS-4) (Warttig, Forshaw, South & White, 2013), the Pittsburgh Sleep Quality Index (PSQI) (Buysse, Reynolds, Monk, Berman & Kupfer, 1988), and the Disordered Eating Attitude Scale (DEAS) (Dos Santos Alvarenga, Baeza Scagliusi & Tucunduva Philippi, 2010) to measure stress, sleep quality, and eating behaviors, respectively.

The PSS-4 consists of a 14-item Likert scale with five subcategories: "never," "almost never," "sometimes," "fairly often," and "very often." Seven items were reverse scored. An example of a positive-worded question is "In the last month how often have you felt nervous and 'stressed'?" and an example of a negative-worded question is "In the last month how often have you been able to control irritations in your life?"

For the sleep section, participants completed the PSQI online. This test measured their sleep quality for the last month. The format of the survey consisted of 22 fill-in-the-blank, forced-choice, and Likert scale questions.

The DEAS is a 25 item scale divided into two parts. Part one consisted of a selected-response and forced-choice questions, whereas part two was based on five-level Likert

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scales. Moreover, this test evaluated five subareas that constituted disordered eating. These areas were relationship with food, concerns about food and weight gain, restrictive and compensatory eating practices, feelings towards eating, and idea of normal eating.

Design

Because the aim of the study was to understand the relationship of stress and sleep quality over disordered eating behaviors, the design used was a multiple regression study with one dependent variable and two independent variables. The dependent variable was eating behaviors, and the independent variables were stress and sleep quality. Based on the data collected, the predicted results were that stress would mediate the relation between sleep quality and eating behaviors.

Procedure

The participants were asked to complete three different surveys on Qualtrics, provided through the internet. They did not have a time limit or a specific schedule to take the tests. Additionally, participants were asked to complete the tests honestly and had the right to not answer a question if they were not comfortable responding to it. They were encouraged to answer all questions and to withdraw from taking the

surveys if they desired. The order of survey presentation was counterbalanced using a Latin Square Design.

Results

The criteria used for exclusion were being male, not finishing the survey, and being older than 40 years old. Based on the criteria, five male subjects, three participants who did not finish the survey, and three participants who were older than 40 years were excluded from the analysis. For descriptive statistics, refer to Table 1. Statistical analyses performed were multiple regression, because the final purpose was to find correlations between the variables of sleep quality, stress, and eating behaviors. For this analysis, eating disorder was the dependent variable, and sleep quality in addition to stress levels were the independent variables or predictors. All variables were measured simultaneously in the survey. The relationship between stress and eating disorder was significant, meaning that an increase in stress was significantly correlated with an increase in eating disorders ($\beta=0.308$, $t=2.529$, $p=0.014$; See Figure 1). However, higher levels of sleep quality were not significantly correlated with high levels of eating disorders ($\beta=0.099$, $t=0.653$, $p=0.516$; See Figure 2). Based on these results, the previous hypothesis that stress mediated the

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correlation between sleep quality and eating disorders was rejected; therefore, it can be concluded that levels of stress independently affect eating disorders and that no mediator was found between sleep quality, stress, and eating disorders.

Discussion

Previous studies have found a relationship between poor sleep quality or quantity and eating disorders (Gonnissen et al., 2000; Killgore et al., 2013; Carvalho Bos et al., 2013). Moreover, other studies have found a positive relationship between stress and eating disorders (Vgontzas et al., 2008; Jean-Philippe, 2014; Dweck, Jenkins & Nolan, 2014). Based on these findings, the objective of the study was to discover if the present research replicates the results found in previous studies. The initial hypothesis was that stress mediated the relationship between eating disorders and quality of sleep. The results revealed that eating disorders presented a significant relationship with stress levels, meaning that higher levels of eating disorders correlated significantly with higher levels of stress. However, sleep quality and eating disorders did not correlate with each other. These findings do not support the hypothesis because no mediator among stress, eating disorders, and quality of sleep was found.

However, as it was mentioned before, literature related to these three variables showed that there are correlations between sleep quality, sleep quantity and eating disorders. Studies demonstrated that short sleepers presented imbalances in hormones related to hunger and satiety signals (Jean-Philippe, 2014) similar to people with poor sleep quality (Gonnissen et al., 2000). Other studies showed that higher stress levels were linked to obese populations and people with eating disorders (Vgontzas et al., 2008). Nonetheless, current reviews contradict the last statement by indicating that only people who restrict their diets eat more foods higher in fats and sugars under periods of greater workload (Gibson, 2006).

The present study resembles previous studies by looking for relationships among stress, sleep, and eating disorders. However, the present study is more specific than past research because it only targets populations with eating concerns, such as bulimia or anorexia, because the test focuses on this side of the eating disorder spectra. Furthermore, this study only measured quality of sleep instead of sleep quantity; whereas, studies that found relationships among the three variables accounted only for sleep quantity (Vgontzas et al., 2008; Carvalho Bos et al., 2013). The present study is unique because

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no other studies have correlated three tests to measure sleep quality, stress levels, and eating disorders. In this sense, the study narrowed the research by looking specifically at these three variables.

Strengths related to this study include that it had good construct validity. The three tests used successfully measured each construct. The Perceived Stress Scale (PSS-4) and the Pittsburgh Sleep Quality Index (PSQI) have good validity and reliability. Therefore, they have shown to obtain similar results among populations and also to measure the expected construct. Moreover, the p value of the correlation between stress levels and eating disorders was significant; indeed, it was close to the 0.01 level, which suggests a high correlation. The study used a Latin Square Design in order to randomize the different tests and account for an order effect. This design increases the internal validity of the test.

The study has limitations that should be considered. It did not account for sleep duration, which may explain the lack of significance between sleep and eating disorders. Moreover, the sample used was a convenience sample; hence, it does not successfully represent the entire population of women. In other words, it does not have good external validity. Despite the fact

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that the use of Latin Square Design may increase the internal validity of the test, internal validity may be decreased because this study does not account for other possible confounds that may affect the results. For example, higher levels of stress may be related to anxiety disorders—stress being a result of the latter instead of the actual variable being measured. Furthermore, the test was self-reported, which suggests that participants took the test under unstandardized environments, which may lead to incorrect results.

Future studies can improve the research by using a randomized sample instead of a convenience sample. A greater variability in demographics will permit researchers to generalize the results to a greater number of women. Another important factor to consider for future research is to measure sleep duration in order to look for other moderators that may explain a possible significance between sleep and eating disorders. Further research should also focus on the weight of participants in addition to age range. It was previously discussed that stress is more present among people with eating disorders, but sleep disturbances are more common among people with obesity. Therefore, it can be assumed that weight acts as a mediator between sleep and eating disorders, or weight

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acts as a mediator between stress and eating disorders; this idea does not support the hypothesis, which is that stress mediates the relationship between sleep quality and eating behaviors. Moreover, finding correlations among these three variables will help to develop intervention studies that may indicate causation, bringing to light new scientific knowledge. Hence, understanding these concepts is relevant for the development of specific therapy and treatment for eating disorders at any point of the spectra.

Conclusion

Eating disorders, sleep disturbances, and levels of stress appeared to be highly correlated based on past studies. Due to this correlation, the objective of the present study was to restate the findings by hypothesizing that stress levels mediated the relationship between sleep quality and eating disorders. Results showed that sleep quality did not correlate with eating disorders. However, stress levels highly correlated with eating disorders. These findings in addition to further studies will be useful for more accurate treatment of eating disorders, basing their procedures on solid scientific knowledge.

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Appendix A

Tables and Figures

Table 1

Descriptive statistics for critical values

	Mean	Std. Deviation	N
Eating disorders	75.5556	15.59547	63
Stress	23.3333	6.56481	63
Sleep quality	12.0794	7.03746	63
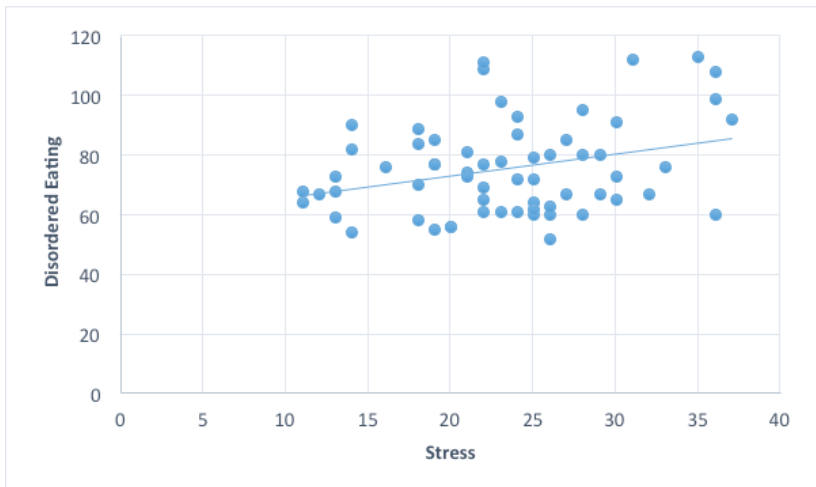
Figure 1. Regression line between stress (x axis) and disordered eating (y axis)

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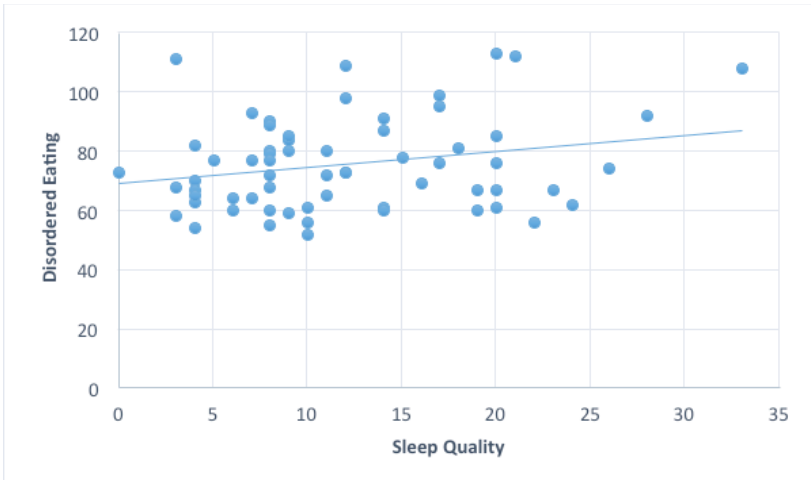
Figure 2. Regression line between sleep quality (x axis) and disordered eating (y axis)

Mindfulness-Based Therapies: Their Efficacy in Treating Clients with Generalized Anxiety Disorder

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Intuition: The BYU Undergraduate Journal of Psychology

Abstract:
In America alone Generalized Anxiety Disorder (GAD) is among the most common mental disorders (Orsillo, Roemer, & Barlow, 2003). Of those diagnosed, 5.1% will suffer from GAD for the rest of their lives. These people suffer significant losses both in quality of life and life satisfaction; they cope with symptoms that include anxiety, worry, rumination, and cognitive inflexibility. Historically, GAD has been a difficult disorder to treat, but emerging research shows that mindfulness-based therapies like Mindfulness Based Stress Reduction (MBSR), Mindfulness Based Cognitive Therapy (MBCT), and Classical Mindfulness (CM) may be effective in reducing the symptoms of GAD. This review discusses ways that mindfulness can be effectively incorporated with Cognitive Behavioral Therapy (CBT) and in what situations mindfulness can effectively replace CBT in treatments for GAD.

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Generalized Anxiety Disorder (GAD) is one of the most common mental disorders in the United States of America, with many primary care facilities for mental health reporting that up to 40% of their clients are diagnosed with this disorder, and of those 40% afflicted with GAD, 5.1% of the clients will suffer from GAD for their entire lives (Orsillo et al., 2003; Roemer & Orsillo, 2002). When GAD was first introduced in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III), published in 1980, it was considered a miscellaneous diagnosis, one assigned to clients whose doctor could not identify the real problem (Roemer & Orsillo, 2002). GAD has since been included in later revisions of the DSM as its own diagnosis, with specific characteristics defining it.

The main characteristic of GAD is chronic worry about improbable, negative events unfolding (Roemer & Orsillo, 2002). This chronic worry has been characterized as a form of experiential avoidance, in which the client will avoid any experience that they suspect may trigger the feeling of worry. They repress these feelings in preparation for a negative experience that may never happen, but that they expect regardless (Orsillo et al., 2003). Hawley et al. (2014) suggests that worry has a ruminative nature, meaning that clients with

GAD will continually worry about negative past and future experiences.

Though often confused with worry, anxiety is another distinct symptom of GAD. While worry involves a series of mental processes, anxiety involves physiological symptoms like concentration problems, restlessness, and disrupted sleeping (Hoge et al., 2014). Another relevant characteristic of GAD, rumination, is closely linked with worry; however, Hawley et al. (2014) defines rumination as a cognitive process distinct from worry. Clients who experience rumination repeatedly focus their attention on past negative experiences by revisiting them obsessively trying to reason possible causes for those experiences.

Another relevant aspect of clients with GAD is that they usually exhibit deficits with their cognitive (or psychological) flexibility. This includes inhibition, the mental process of stopping a train of thought, and switching, the mental process of consciously bringing the attention back to a specific focus (Lee & Orsillo, 2014; Ruiz, 2014). A normal level of cognitive flexibility would allow an individual to perform these two processes without too much effort, but a person diagnosed with GAD may encounter significant trouble while attempting to

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inhibit and switch thoughts.

Despite the varied symptoms, many treatments for GAD are emerging; mindfulness is perhaps one of the most effective. Mindfulness is composed of five generally accepted facets: observation, noticing both external and internal events; description, the ability to put words to those internal events; acting with awareness, giving full attention to whatever task is at hand without distraction; cultivating an attitude of non-judgment, accepting all thoughts without attaching pre-conceived notions or social conventions to them; and non-reaction to stimuli, all thoughts without regard to intensity are able to pass through the mind without positive or negative reaction (Curtiss & Klemanski, 2014; Hoge et al., 2014; Ruiz, 2014).

Mindfulness has a long history predating the DSM-III and begins instead with the Buddha. In its original form taken from Buddhist philosophy, mindfulness is the act of experiencing a thing or an event without any preconceived notions as to what that thing or event is. In this way, the person seeking mindfulness receives the least-corrupted experience possible, gaining both insight and a lasting spirit of calm (Rapgay, Bystritsky, Dafter, & Spearman, 2011). Following

Buddha's death, the concept of mindfulness was split between two purposes: vipassana, concentrating in order to achieve insight, and samatha, concentrating in order to acquire a lasting spirit of calm (Rapgay et al., 2011). Hundreds of years later, many different treatments for GAD have emerged from this split, including Classical Mindfulness (CM), Mindfulness-based Stress Reduction (MBSR), and Mindfulness-based Cognitive Therapy (MBCT) (Rapgay et al., 2011).

Almost all mindfulness-based therapies have descended from the vispassana school of thought. However, some practitioners of CM currently seek to return to the way mindfulness was performed previously. By recombining vipassana with samatha, twenty-first century proponents of CM seek to recreate the original Buddhist concept of mindfulness by giving samatha the names "bare attention" or "direct experience," and giving vispassana the name "detached, discriminative observation" (Rapgay et al., 2011). By combining these two forms of knowledge, practitioners of CM hope to give their clients greater alleviation from the symptoms of GAD (Rapgay et al., 2011).

In contrast to CM's movements toward bringing mindfulness back to its Buddhist origins, Buddhism has been

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removed from MBSR and its processes, making it an entirely

clinical treatment apart from religious tradition (Rapgay et al.,

2011). MBSR consists of an eight-week course, with a different

focus each week. Each focus has specialized mindfulness

meditation activities designed to help clients cope with

symptoms of GAD. MBSR is unique in this respect in that it

does not directly treat symptoms of GAD, but trains clients in

the skills necessary to cope with the symptoms on their own

(Boettcher et al., 2014).

In a similar way, clients with GAD learn MBCT,

incorporating the processes of MBSR, but with multiple

differences. Curtiss & Klemanski (2014) have noted the

main goal of MBCT is not to give clients adequate coping

mechanisms but to stop potential relapses from ever occurring

(Kim et al., 2009). Also, the format of the eight-week course

in MBCT includes cognitive exercises like thought association

in addition to mood and behavior associations, along with

the mindfulness meditation practices of MBSR (Curtiss &

Klemanski, 2014). MBCT and MBSR are similar, and much may

be gained from either, but they still have major differences that

clients must consider.

Both formal and informal practices are common in all

three of these treatments—CM, MBSR, and MBCT. Formal practices involve guided meditations or sitting meditation that last for a predetermined time. Informal practices involve short mental exercises that are not recorded, like consciously bringing the attention back to the task at hand (Hawley et al., 2014). Informal practices are much harder to measure, but both informal and formal mindfulness practices are essential components of all three of these treatments.

When taught by trained professionals to individuals suffering from GAD (either in person or through the Internet) CM, MBSR, and MBCT could all be companions to current Cognitive Behavioral Therapy (CBT). In many mild to moderate cases, one or more methods may be sufficient to replace CBT for many clients. This literature review will first consider mindfulness as an effective companion to current CBT treatments. It will then consider ways mindfulness could replace CBT treatments in many mild to moderate cases

Mindfulness as an Effective Companion to CBT

Although mindfulness-based CBT treatments could benefit from larger research studies, numerous smaller studies have shown promising results in using mindfulness as an effective companion to CBT. Evans et al. (2008), Hoge

et al. (2014), Kim et al. (2009), Lee & Orsillo (2014), Orsillo et al. (2003), and Ruiz (2014) have all concurred in various experiments that mindfulness is effective and provides positive results when combined with CBT. In addition to reducing the general symptoms of GAD, MBCT appears to be especially effective in treating clients with more severe GAD by specifically improving clients' levels of cognitive flexibility.

Hoge et al. (2014) conducted a study about the influence of decentering, or, in MBSR, the act of observing thoughts, feelings, and urges as transient, which prevents clients from internalizing negative experiences. However, in the course of the study, the researchers discovered that decentering, as a cognitive tool, is not necessarily a part of MBSR, but they discovered it to be a significant part of MBCT. The researchers suggested that further study into decentering could yield promising results about cognitive flexibility (Hoge et al., 2014). This suggests that there is still work to be done in developing both MBSR and MBCT to fully utilize the therapies.

Studies show that clients with GAD who use MBCT improve their cognitive (or psychological) flexibility, which researchers believe may be the most important improvement MBCT-using clients with GAD can make (Lee & Orsillo, 2014;

Ruiz, 2014). Lee and Orsillo (2014) compared three groups of participants with GAD in order to determine whether mindfulness could be used to effectively improve cognitive flexibility. One group used mindful breath exercises, another group used relaxation techniques, and the last group used thought-wandering exercises. The mindfulness groups showed significant overall improvement in their ability to both inhibit and switch their thoughts, signifying their cognitive flexibility improved. Additionally, the improved cognitive flexibility was directly correlated with decreased anxiety symptoms among the participants (Lee & Orsillo, 2014). Subsequently, Ruiz (2014) also performed a study on cognitive flexibility in clients with GAD, and after having participants fill out multiple self-report surveys, found significant correlations between cognitive inflexibility and pathological worry. Such research suggests that using MBCT techniques to treat cognitive inflexibility may significantly reduce severe symptoms of GAD like anxiety and pathological worry; although, more research is necessary before any definitive statement can be made.

Cognitive flexibility is not the only improvement that MBCT makes for clients with GAD. Evans et al. (2008) took the eight-week course outline of MBSR and added in cognitive

measures such as observation of the associations between worried thoughts, mood, and behavior. After the course, participants reported significant reductions in their general symptoms. Interestingly, the study also showed that the levels of increase in mindfulness were statistically insignificant, yet the reductions in symptoms remained statistically significant (Evans et al., 2008). This indicates that even a short course in MBCT may be associated with long-lasting improvements in clients with GAD.

These findings have been corroborated by other studies. In a small eight-week MBCT course with GAD clients where participants were not allowed to meditate outside of the course, reductions in symptoms of GAD were significantly higher than the control group's reductions. At the end of the eight-week MBCT course, 16 of the 24 participants had entered remission from GAD (Kim et al., 2009). Results like these suggest that combining CBT with mindfulness techniques may be more effective than purely mindfulness-based approaches like MBSR. For example, clients treated with MBSR have not been shown to achieve remission, despite MBSR's demonstrated ability to improve general life experience for GAD-afflicted clients (Boettcher et al., 2014; Curtiss & Klemanski, 2014; Hawley et

al., 2014; Hoge et al., 2013; Ruiz, 2014). Orsillo et al. (2008) reported similar results: at the end of a nine-week MBCT course, they reported that 75% of participants reached high-end state functioning, along with significant reductions of GAD symptoms. With further research, results like these suggest that MBCT may prove a highly effective treatment for GAD.

By directly addressing traits like cognitive inflexibility in clients with GAD, MBCT offers a focused treatment that could possibly be more effective than both CBT and mindfulness therapies. MBCT also has the potential to reduce general symptoms of GAD at comparable rates as MBSR and CBT, creating a third option for GAD clients that could be just as, if not more, effective as traditional CBT treatments.

Mindfulness as an Effective Replacement for CBT

Mindfulness is clearly an effective companion to current CBT therapies, but many different kinds of Internet-based mindfulness—like MBSR or CM—might also be able to completely replace CBT as a treatment option for clients struggling with mild to moderate GAD. For individuals suffering from GAD who also lack the funds or the time to see a licensed therapist for a course in CBT, Internet-based mindfulness treatments have been shown to be just as effective

as traditional therapies, with the added benefits of cost and flexibility (Boettcher et al., 2014). The worry about a stigma against mental illness, especially against seeking help, could be significantly reduced by Internet-based mindfulness therapies, as clients can quietly participate in the mindfulness programs on their own. In addition, the client would not have to ask for financial help, eliminating another potentially shaming situation. Another benefit of an Internet-based program is that the client would not have to depend on anyone else for self-improvement, placing the responsibility directly on the client.

Despite the lack of substantial research into the efficacy of Internet-based mindfulness treatments, early studies show promising results. One such study, Boettcher et al. (2014), reports a significant decrease in symptoms of GAD in participants as measured by the Beck Anxiety Inventory (BAI), a common measure of anxiety symptoms. The participants did not only report symptom reduction, but also reported a higher average of satisfaction with their treatment as compared to a discussion forum control group counterpart. The mindfulness group also reported moderately improved satisfaction in life in general (Boettcher et al., 2014). These results compare favorably to several other mindfulness-based treatment studies,

suggesting that Internet-based mindfulness treatments may

be just as effective as more traditional alternatives like CBT

(Boettcher et al., 2014; Curtiss & Klemanski, 2014; Hawley et

al., 2014; Hoge et al., 2013; Rapgay et al., 2011; Ruiz, 2014). This

research suggests the possibility of replacing CBT with Internet-

based mindfulness treatments as a therapy option for clients

with mild to moderate GAD seems to be valid.

CM has also shown promising results that may indicate

an effective replacement for traditional CBT treatments. Critics

of CBT have noted that traditional CBT does not address the

secondary guilt and worry felt by clients with GAD (Rapgay et

al., 2011). This secondary wave of negative emotions is thought

by many to be a main source of symptoms of GAD, and CM

seeks to address this wave (Rapgay et al., 2011). Therapists

teaching CM treat secondary guilt by training their clients

in two specific skill sets: first in sustained, detailed, non-

conceptually divided attention and awareness, and second in

the ability to carry out experientially based insights (Rapgay et

al., 2011). This indicates that clients trained in these skill sets

will be able to focus on anything they choose without pre-

conceived notions, and they will be able to relate experiences

in a positive fashion. Rapgay et al. (2009) showed in a small

case study an example of how CM works in a therapy setting. After participating in 15 sessions of CM, in addition to daily assignments and completion of numerous self-monitoring reports, the client exhibited significant reductions in symptoms of GAD and an improved ability to cope with the remaining symptoms (Rapgay et al., 2011). Although this was only a small case study, it illustrates the potential of CM to possibly replace traditional CBT treatments in clients with GAD, as the client exhibited improvements similar to those treated with CBT.

MBSR may prove to be the most effective of the mindfulness-based therapies that could potentially replace CBT as a treatment option for clients with mild to moderate GAD. It has no cognitive characteristics in its eight-week course, yet participants in numerous studies have shown major reductions in stress and other symptoms of GAD (Boettcher et al., 2014; Curtiss & Klemanski, 2014; Hawley et al., 2014; Hoge et al., 2013; Ruiz, 2014). Hoge et al. (2013) conducted an eight-week MBSR course and reported that participants with GAD experienced up to 66% reduction in symptoms. The study also reported that mindfulness meditation resulted in increases in positive self-statement agreements. In addition, it reported reductions in "pain unpleasantness," meaning that

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memories of painful experiences became less disturbing and currently painful experiences became easier for clients to cope with (Hoge et al., 2013). Additional benefits of mindfulness have been reported as well. Hawley et al. (2014) showed that statistically insignificant improvements in levels of mindfulness resulted in statistically significant improvements in overall life quality. Their research also showed that the frequency of formal and informal mindfulness practice outside of the MBSR course might not have significant influence over symptom reduction (Hawley et al., 2014). This implies that clients with GAD who put minimal amounts of effort into an MBSR course would reap greater symptom reduction than from putting far more effort into a CBT course that may not yield symptom reductions as significantly.

Even more impressively, there have been several studies about MBSR that may show that even individual components of the treatment could be viable replacements for CBT in treatments for GAD, including increased cognitive flexibility. Curtiss & Klemanski (2014) found that deficits in the non-reaction to stimuli facet of mindfulness showed some validity in predicting symptoms of GAD. With this knowledge, therapists could treat those symptoms by specifically targeting those non-

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reaction deficits and improve the coping abilities of GAD clients by increasing their ability to non-react in the face of triggering stimuli. Ruiz (2014) showed that deficits in the cultivating an attitude of non-judgment facet of mindfulness could be possible predictors of pathological worry in clients with GAD. Just as with the non-reaction to stimuli facet, this information could be invaluable to caregivers while treating clients with GAD by allowing them to focus their efforts on fixing deficits in non-judgment. These two specific facets of mindfulness imply that there may be some validity in the idea that simply improving a facet of mindfulness could be sufficient to replace traditional CBT treatments in clients with mild to moderate GAD; although, more research would be necessary to confirm this assumption.

More research studies focused on the efficacy of these mindfulness-based treatments as replacements for CBT are necessary, but they show promising preliminary results. The ease of Internet-based mindfulness treatment could be a comfort to many clients with GAD, and both CM and MBSR treatments, under the guidance of a trained professional, may provide significant, permanent reduction in unpleasant symptoms (Boettcher et al., 2014; Curtiss & Klemanski, 2014;

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Hawley et al., 2014; Hoge et al., 2013; Rapgay et al., 2011; Ruiz, 2014). MBSR shows particular potential for possibly replacing CBT, as even certain facets of the MBSR treatment course show great efficacy with validity and reliability, in predicting and treating major symptoms of GAD (Curtiss & Klemanski, 2014; Ruiz, 2014). Further research into this area of GAD treatment would prove invaluable to the psychological field.

Conclusion

Although researchers of mindfulness would benefit from continued research into the effects of MBCT, MBSR, CM, and other mindfulness-based therapies, early studies suggest promising results in treating GAD. MBCT seems to be particularly effective in treating clients with GAD who exhibit more severe symptoms like poor cognitive flexibility, as well as treating the more general symptoms of GAD (Evans et al., 2008; Hoge et al., 2014; Kim et al., 2009; Lee & Orsillo, 2014; Orsillo et al., 2003; Ruiz, 2014). Internet-based mindfulness treatments have also been shown to have effective treatment potential, with the added benefits of being free, and helping the client avoid the fear of facing a negative stigma (Boettcher et al., 2014). Early case studies appear to show the validity of CM treatments of GAD, which involve treating harmful emotions not covered

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by CBT or MBSR (Rapgay et al., 2011). MBSR is perhaps the most popular of mindfulness-based therapies, because of its possible ability to completely replace CBT as a treatment option for GAD clients (Boettcher et al., 2014; Curtiss & Klemanski, 2014; Hawley et al., 2014; Hoge et al., 2013; Rapgay et al., 2011; Ruiz, 2014). Significantly, the individual facets of MBSR show some validity in being able to predict and treat symptoms of GAD (Curtiss & Klemanski, 2014; Ruiz, 2014). Whether mindfulness-based therapies are combined with CBT or used to completely replace CBT, the body of research shows promising results for the treatment of clients with GAD.

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Employee Wellness Declines During Mergers and Acquisitions

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Abstract:
Proposed corporate mergers and acquisitions in the US can have negative consequences for the employees who are involved. For individuals who are laid off, the consequences may include anger, stress, and health complications. For employees who remain with a company, the consequences include feelings of powerlessness, dissatisfaction, and lack of motivation. Employers should focus more on the psychological well-being of the employees who are involved by offering financial counseling, emotional therapy, job fairs, and skills training. Doing so could lower employee turnover, raise employee morale, and increase motivation.

Intuition: The BYU Undergraduate Journal of Psychology

In the US, 80% of Fortune 100 companies engage in proposed mergers and acquisitions (M&A) as a strategy to increase growth and profits (Harding & Rovit, 2004). However, the employees of the corporations involved are often dissatisfied with the results of the M&A process (Cartwright & Cooper, 1993). In fact, the layoffs that commonly occur in the process can lead to employee distress and the reduced psychological well-being of employees. Health complications, emotional problems, and social anxiety are not uncommon (Shermon, 2011). These challenges can be detrimental to employee satisfaction and wellness. These feelings can have a significant impact on employees' professional performance and may also have an immediate impact on their personal lives. Maintaining awareness of these issues helps managers keep employees engaged in the employee' roles (Fernandes, Knowles, & Erickson, 2009).

A corporation may pursue several forms of aid to employees going through the M&A process. For example, clear communication across a series of well-timed announcements can have a positive impact d (Hill & Wiener, 2008). Providing resources, such as, personal counseling, financial planning, job fairs for those who are leaving, career counseling, and fair

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compensation packages send a clear message that the work

of past, present, and future employees is valued (Krumboltz,

2011). Providing these resources can send a clear message

that can enhance a company's reputation by showing a strong

commitment to helping employees as workers go through a

tumultuous period in their lives.

Factors in M&A

Bohin, Daley, and Thomson (2000) listed seven reasons

that companies propose M&A:

- Create and exploit synergies

- Increase market share

- Protect markets by weakening or eliminating rivals

- Acquire products and/or technologies

- Strengthen the core business by expanding in areas of

  greatest competence

- Gain footholds in other countries or continents

- Achieve critical mass or competitive size (p. 226)

It is interesting to note that the list pays no regard to the

impact the eventual decision may have on employees within

the companies that are involved. Consequently, the term M&A

often elicits negative emotions in employees and has negative

attributes (Cartwright & Cooper, 1993).

Employee Anxiety During M&A

During M&A, employee anxiety tends to increase due to the prospect of layoffs. According to Aamodt (2010):

> . . . From a health perspective, victims of downsizing report increases in headaches, stomach upsets, sleeping problems, cholesterol levels, physical illness, hospitalization rates, heart trouble, hypertension, ulcers, vision problems, and shortness of breath. Emotionally, victims report high levels of stress, increased drug and alcohol abuse, more marital problems, and feelings of depression, unhappiness, anger, frustration, and dissatisfaction with life. Socially, victims are reluctant to share their feelings with friends, avoid family and friends due to feelings of embarrassment and shame, and avoid social situations and entertainment requiring money. (p. 540)

If laid-off employees are unable to adjust effectively, it could delay their ability to find new employment be financially and emotionally detrimental.

Employees who remain within the company following M&A(commonly known as "survivors") may also have difficulty adjusting to the changes that result. It may become

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difficult for employees to focus on their tasks because of worry

about their future with the company. Levels of job satisfaction

and commitment to the company tend to decrease during M&A

(Moron & Panasian, 2005).

Shifting Corporate Views of M&A

Because of the high failure rate associated with M&A,

companies have begun to place a higher priority on the

employees who are involved with the M&A process as these

employees can be influential in aiding the M&A process to

be successful (Allen & Weiner, 2008). In the past 15 years,

there has been an increased emphasis on the importance

of employee wellness during the M&A process. Sculer and

Jackson (2001) asserted that the loss of talent within companies

may be a primary factor in the success or profitability of M&A.

Retaining talented or otherwise experienced employees has

become a top priority for companies pursuing M&A. Many

employees harbor concerns about the M&A process, concerns

related to what is known as a "psychological contract" between

employees and their employer. The contract is defined as a set

of unwritten expectations that define the employer-employee

relationship (Wharton School of Business, 2005). These

expectations generally include the employee pledging loyalty

to an organization and, in return, receiving job security (Hart & Thompson, 2007). Altered perceptions of the validity of this contract by employees following M&A may have a large impact on employees' thoughts, beliefs, and attitudes about the company.

Telecommunications mega-mergers: Impact on employee morale and turnover intention.

Chambers and Honeycutt (2009) discussed the impact of M&A on the telecommunications industry. They cited the the effects of AT&T's sale and purchase of several companies in an effort to increase the parent company's portfolio. The Communications Workers of America, a union that dealt with AT&T during the mergers, represented employee interests and concluded that the M&A "had the greatest impact on low morale and generally high turnover intentions…being merged or acquired has a pervasive, negative impact on every aspect of how an employee views his organization" (p. 45).

Retaining Key Talent During M&A

Retaining key talent during the M&A process is crucial to ensuring its success . Kay and Shelton (2000) reported a survey of professionals who were involved in M&A and asked them to rate a variety of "people issues". The four that

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were considered most critical for success were the retention

of key talent (76%), communication (71%), the retention of

key managers (67%), and an integration of corporate cultures

(51%). The authors concluded that:

> . . . People problems are a major cause of failed mergers,
> and you must ensure that most if not all of the people
> you want are still in place at the end of the integration
> period. This is best achieved by carrying out an
> employee selection process whose pace and substance
> match the kind of merger involved. (p. 32)

Schuler and Jackson (2001) emphasized four major concepts

that should guide companies desiring to retain key talent

negotiating financial deals with key employees, giving retention

bonuses, writing employee agreements before the integration

begins, and managing the communication process.

Each of concept points to ways that companies may

incentivize an employee to stay. The first three are monetary.

Regarding the fourth, Moran and Panasian (2005) stated:

> . . . Any failure to communicate leaves employees
> uncertain about their future and will lead them to
> seek other means to reduce this uncertainty, such
> as reliance on rumors and other means of informal

communication, which are not an effective means of reducing anxiety since they tend to focus on negative and often inaccurate information. (p. 3)

The Psychological Contract

Creating a psychological contract between employees and the companies they work for may also be valuable during M&A. As stated earlier, this contract is based on the expectations that exist between employees and an organization (Tomprou, Nikolaou, & Vakola, 2012). For example, companies may agree to provide monetary compensation to employees in exchange for employees' formal commitment to remain with the company. When M&A are proposed, organizations may run the risk of violating the psychological contract, as expectations it contains may change .According to Tomprou, Nikolau, and Vakola (2012):

> . . . [E]mployees who realize that their organization has broken its promises experience negative feelings that can have an impact on both job satisfaction and organizational commitment. Company executives should be aware of this potential source of decreased job satisfaction and organizational commitment to act quickly on broken promises and negative feelings that

may follow. In addition, understanding the nature of
psychological contract breach and feelings of contract
violation in relation to organizational change might
be useful in identifying the most appropriate process
for addressing employees' emotional responses.…
When considering this finding, one should look at
trust building as a way of preventing psychological
breach and violation. Trust is not a new concept since
it is found to be positively related with various positive
work behavior and organizational outcomes. Managers
are advised to foster perceptions of trust…and create
appropriate conditions for psychological contract
fulfillment. (pp. 401-402).

**Experiencing organizational change in Greece: The
framework of psychological contract.**

A study conducted in Greece examined how
organizational changes impacted psychological contracts in
the banking sector (Tomprou, Nikolaou, & Vakola, 2012).
Because of the nation's economy, banks' business environment
changed, requiring them to shift their operating practices
and to downsize. The goal of the study was to determine
whether banking employees had perceived a breach in their

psychological contract s. The authors reported that employees experienced a breach of the contract, which negatively impacted their performance. Although they understood that downsizing may have been necessary for the banks' survival, they still felt stressed, angry, and betrayed. They dealt with their frustration in different ways, but employees who seemed to handle the downsizing best were those who had not planned to stay with their bank for a long period of time.

Discussion

When undergoing M&A, organizations need to be aware of the potential emotional impact on both survivors and "victims". By failing to adequately consider employees, organizations may risk the success of M&A.

In this review, I have described means by which organizations may offset the toll on employees during the M&A process. For example, they could train their managers in effective listening skills, contract with local career-counseling services, hold a job fair, and offer career services and resumé workshops. The company's attempts to meet the needs of the victims, may persuade survivors that the company also cares about their personal well-being.

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Employee Wellness

      Organizations could more fully meet the needs of employees M&A by focusing on psychological needs When informing employees about how the process may impact them, it is important that the news be delivered in person. Training managers on the best ways to have these conversations with employees could assure a positive impact (Aadmodt, 2010). Managers should recognize that employees go through a grieving process when informed of the loss of a job. By providing access to emotional- counseling services, they could better aid employees' e emotional transition (Fishman, 2014). Aadmont (2010) described four stages of change: denial, anger, fear, and acceptance. Financial counseling could also be beneficial. Some psychologists advocate that marriage and family therapists receive financial training so as to better understand the financial troubles clients may be struggling with during the M&A process (Rappleyea, Jorgensen, Taylor, & Butler, 2014). Career counseling by industrial and organizational psychologists could also be an asset to victims. According to Aadmont (2010), "To help layoff victims find new employment, workshops [could be] conducted on such topics as understanding the job market, finding potential job openings,

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writing resumes, performing well in the employment interview,

and making decisions about job offers" (p. 540).

       Such efforts may impress survivors that the company

cares about the wellness of its employees and thereby could

improve employee morale and increase commitment to the

company's objectives.

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Disordered Diabetics: The "Highs and Lows" of Coping with Chronic Illness

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Intuition: The BYU Undergraduate Journal of Psychology

Abstract:
Studies have found that females with type 1 diabetes are twice as likely as non-diagnosed peers to have mental illnesses such as depression or anxiety. Researchers have found that individuals with diabetes have greater difficulty when coping with external and internal stressors; often resulting in acquired negative coping methods such as suicide and eating disturbances. The relationship between mental health and diabetes also increases the probability of female patients acquiring eating disorders (particularly binge-eating disorder and bulimia) due to the nature of medical treatments, low self-esteem, and poor body image found in populations with diabetes. Additionally, intentional medication misuse is a common practice of females with diabetes due to the correlation between insulin therapy and weight gain; the resulting misuse can increase mortality rates and cause long-term physical health complications.

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Diabetes, a chronic disease resulting from a lack of insulin-producing cells in the pancreas, was first recognized as an illness in ancient Egypt after the examination of individuals who suffered from frequent urination, unquenchable thirst, nausea, restlessness, and coinciding 'sweet' urine (Bilous & Donnelly, 2010; Goodfellow & Schmitt, 1994; Stahl-Pehe, Lange, Bachle, Castillo, Holl & Rosenbauer, 2014). For thousands of years, few practical theories as to what caused this disease or how one could go about treating it were available, resulting in high patient mortality rates (Feudtner, 2011; Goodfellow & Schmitt, 1994). Physicians later recognized that the 'sweetness' of urine from individuals with diabetes was due to an excess of sugar (glucose) within the body that resulted from the overwhelming of blood regulation and glucose absorption processes in the kidneys (Bilous & Donnelly, 2010).

In 1921, Canadian researchers investigated the biochemical features of diabetes and discovered the underlying relationship between blood glucose levels and insulin cell production (hormone that regulates glucose in the body) (Feudtner, 2011). Shortly thereafter, insulin injections and monitored eating became the preeminent treatments for diabetes management; associations between diabetes and health

consequences such as blindness and nerve damage were also

realized at this time (Bilous & Donnelly, 2010; Goodfellow

& Schmitt, 1994). In the years that followed, diabetes was

categorized into two groups: type 1 (juvenile, insulin-

dependent) and type 2 (adult-onset). Today, more than 26.3

million individuals are diagnosed with diabetes in the United

States with a steady increase of 2.5 to 3 percent of diagnosed

individuals with type 1 diabetes worldwide per year (Bilous &

Donnelly, 2010). For the purposes of this literature review, type

1 diabetes (particularly in adolescent female patients) will be

considered exclusively.

Just as the association between insulin and blood

glucose levels was discovered nearly a hundred years ago, recent

studies have found a significant correlation between diabetes

and mental health disorders such as depression and anxiety

(Hackworth, Hamilton, Moore, Northam, Bucalo & Cameron,

2013; Hasan, Mamun, Clavarino & Kairuz, 2013; Stahl-Pehe et

al., 2014). Statistically, patients with diabetes of both genders

have twice the likelihood of a diagnosis of depression and four

times the rates of experienced depression than members of

the general public (Esbitt, Batchelder, Tanenbaum, Shreck &

Gonzalez, 2014; Hasan et al., 2013). Additionally, researchers

have suggested that individuals with early-onset type 1 diabetes are more likely to suffer from mental health issues than individuals diagnosed later in life (Stahl-Pehe et al., 2014). Although studies concerning mental health in diagnosed individuals differ on the causations for these numbers, many assume that stressors related to having a chronic illness act as the primary catalysts for these behaviors (Hasan et al., 2013; Grylli, Wagner, Hafferl-Gattermayer, Schober & Karwautz, 2005).

Particular stressors of diabetes relate to the required maintaining of strict daily regimens such as insulin injections, finger-prick glucose tests, and monitored food intake (Hackworth et al., 2013). Persons with diabetes also face the constant threat of severe long-term health complications due to health mismanagement resulting from hyperglycemia (extreme 'high' blood glucose) or hypoglycemia (extreme 'low' blood glucose). Additionally, patients with diabetes are highly susceptible to the influence of a medically induced preoccupation with numbers, physical health, and monitored food intake (Grylli et al., 2005; Hackworth et al., 2013; Powers, Richter, Ackard, Gerken, Meier & Criego 2012).

The combination of the previously mentioned disease-

related stressors and the increased likelihood of depressive traits in individuals with diabetes can cause impaired ego development and self-image complexity during adolescence, resulting in long-term low self-esteem, body dissatisfaction, and an increased desire for social acceptance (Grylli, Wagner, Berger, Sinnreich, Schober & Karwautz, 2010; Quick, McWilliams & Byrd-Bredbenner, 2012). General feelings of helplessness associated with the various treatment requirements and treatment consequences of type 1 diabetes (such as weight gain via insulin therapy) may also contribute to the desires for peer approval and bodily control within diagnosed adolescent populations (Grylli et al., 2010). Additionally, the desires for social acceptance and "fitting in" result in individuals (particularly females) with diabetes having twice the likelihood of attaining eating disorder characteristics and habits of medication misuse than non-diagnosed individuals Grylli et al., 2005; Grylli et al., 2010).

The following sections will expand on the correlation between mental health and physically manifested behaviors in type 1 diabetes. With the aforementioned findings from psychological and medical studies in consideration, evidence suggests that female adolescents with type 1 diabetes experience

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higher rates of mental illness and distorted perceptions of
body image than members of the general public, which creates
an inability to cope effectively with external and internal
pressures—often resulting in negative coping methods,
increased frequency of disordered eating, and increased
intentional medication misuse than the general public.

Coping Capabilities

Coping with the physical, social, and emotional
demands of type 1 diabetes can be a formidable task for
individuals diagnosed with the chronic illness before or
during adolescence (Grylli et al., 2005; Stahl-Pehe et al., 2014).
Studies have shown that while biomedical and technological
advances have decreased the difficulty associated with diabetes
care, medical advances have also increased psychological
stressors and emotional distress in patients (Esbitt et al.,
2014; Stahl-Pehe et al., 2014). The increased risk factor of
acquiring mental health complications following a diagnosis
of diabetes at a young age (and the resulting consequences
thereof) is a significant concern in studies of the emotional
and psychological health of individuals suffering from the
chronic illness (Esbitt et al., 2014; Grylli et al., 2005; Hasan et
al., 2013). Grylli, Wagner, Hafferl-Gattermayer, Schober, and

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Karwautz (2005) theorized that the increased occurrence of stressors, both external and internal, placed on individuals with diabetes may be the primary causation behind mental health complications in diagnosed populations. Additionally, it has been suggested that the perception of being disabled and daily emphasis on having a chronic illness may also increase the risk of depression in adolescent females with diabetes (Hasan et al., 2013).

On average, an individual with diabetes is twice as likely to acquire depression as a non-diagnosed individual (Chung et al., 2014; Esbitt et al., 2014; Hasan et al., 2013). Depression alongside diabetes is often associated with self-management difficulties, health-related complications (glycemic control), and increased mortality rates, thus furthering the complications of balancing mental well-being and the physical demands of chronic illness (Esbitt et al., 2014; Grylli et al., 2005; Stahl-Pehe et al., 2014). As self-management declines, patients with diabetes face the probability of acquiring serious long-term health complications such as kidney disease, vision loss, vascular damage, amputation of limbs, increased mortality, and a reduced quality of life (Esbitt et al., 2014). Knowledge of these potential side effects of poor self-care could enhance the

effects of depression in populations with diabetes, often leading to harmful coping methods that act as compensatory behaviors (Chung et al., 2014; Grylli et al., 2005; Quick et al., 2012). Together, stressors and depression may lead to the decrease of coping capabilities within groups of individuals with diabetes; resulting in higher rates of suicide and eating disturbances.

Suicide

Hwang (2014) found that a diagnosis of insulin-dependent diabetes (type 1) created a marked increase in suicide ideation and suicide attempts among patients, with 20.7% of all patients measured (male and female) having reported suicidal tendencies following initial treatment for the disease. Individuals with diabetes often rate their health and quality of life as worse than the general public while also experiencing low self-efficacy and high hopelessness (Chung et al., 2014; Hasan et al., 2013). The association between depressive thoughts, health complications, and a perceived lower quality of life result in higher rates of suicide, suicidal thoughts, and suicide attempts among patients with diabetes than in populations of the general public (Balfe, Coyle, Smith, Sreenan, Conroy, & Brugha, 2013; Chung et al., 2014; Grylli et al., 2005; Hillege, Beale & McMaster; 2008). Additional studies

have also suggested that high blood glucose levels may also increase the prevalence of suicidal attitudes in treated patients as well (Chung et al., 2014).

Eating disturbances

Pressure associated with prescribed dietary and health regimens affect the process of self-regulation in individuals with diabetes (Grylli et al., 2010; Quick et al., 2012). If introduced during childhood and adolescence, these regimens can become catalysts for harmful thoughts and attitudes towards food consumption and body weight in adulthood (Quick et al., 2012). Quick, McWilliams, and Byrd-Bredbenner (2012) reported that individuals facing chronic illness (such as type 1 diabetes) were significantly more likely to acquire inappropriate compensatory behaviors to manage their weight such as excessive exercise and medication misuse as means of countering food intake. Additionally, patients facing these illnesses were more likely to place a greater emphasis on physical health, social diversion, structured meals, food quality, and self-comparison to peers (especially peers that are maternal or familial in nature). Evidence has also suggested that the increased emphasis on physical well-being and dietary restriction in diabetes treatments directly relates to the

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acquiring of disordered eating behaviors and food perceptions

later in life (binge eating, purging, restraint eating, strict

dieting) (Balfe et al., 2013; Pollock-BarZiv & Davis, 2005: Quick

et al., 2012).

Disordered Eating

Individuals with diabetes face 2.4 times the likelihood of

obtaining eating disorders, with nearly 20% of all females with

type 1 diabetes experiencing eating disorder symptomatology

following their initial diagnosis (d'Emden et al., 2013; Grylli

et al., 2005; Grylli et al., 2010; Hillege et al., 2008). Powers,

Richter, Ackard, Critchley, Meier, and Criego (2013) suggest

that the emphasis on food intake and body weight in diabetes

paired with Western culture's obsession with thinness in various

media outlets may further increase the risk factor for disordered

eating in females with diabetes. Additionally, females with

diabetes have been found to score higher on measurements

of "negative body self" and "object depreciation" (devaluation

of objects due to factors of anticipation and disappointment);

potentially heightening negative perceptions of body image in

accordance with increased susceptibility to outside influences

(family, peers, media), perfectionism (esthetic appeal), and

low self-esteem—further increasing the likelihood of eating

disorder behaviors in diagnosed females (Grylli et al., 2010;

Philippi, Cardoso, Koritar & Alvarenga; 2013; Pollock-BarZiv

et al., 2005; Powers et al., 2012).   Additionally, this emphasis on

perfectionism and susceptibility to outside sources may suggest

that that the advice of medical professionals is likely to be

misinterpreted by diabetic patients experiencing eating disorder

tendencies and morphed into negative compensatory methods

which contribute to disordered eating.

Treatments for diabetes, such as dietary restraint, weight

management, and insulin injections may act as catalysts for

eating disorders in diagnosed females, with the rigorous nature

of treatments posing a particular problem for individuals

with inclinations towards weight, shape and dietary concerns

(Colton, Rodin, Olmsted & Daneman, 1999; d'Emden et al.,

2013; Hillege et al., 2008; Philippi et al., 2013; Pollock-BarZiv,

2005). Furthermore, it has been found that patients with

diabetes who were treated for eating disorders tend to respond

more poorly to healing strategies than their peers due to the

effects of long-term diabetes treatments (habitual/medical

dieting and weight awareness) (Colton et al., 1999). Although

several studies using eating disorder questionnaires found

patients with diabetes to be "healthier" than the general public,

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the extent to which these questionnaires potentially promote false positives, false negatives, and subjectivity concerning the interpretation of recorded responses detracts from the plausibility of their overall findings (Powers et al., 2012; Powers et al., 2013). Additionally, the role of mental health is often not considered in these studies due to the emphasis on the physical health of the patient—a common practice in endocrinology offices as well, which leads to the unintentional overlooking of eating disorder symptomatology in female patients.

Binge-Eating Disorder and Bulimia

The most common eating disorders found within groups of females with diabetes are binge-eating disorder and bulimia (Brown & Mehler, 2014; d'Emden et al., 2013; Grylli et al., 2005; Grylli et al., 2010; Philippi et al., 2013; Pollock-BarZiv, 2005). Binge-eating disorder occurs when individuals turn to (usually high calorie) food as coping or compensatory mechanism, excessively eating for a prolonged period of time without a sense of control during the episode. Concurrently, bulimia is typically defined as recurrent binge eating episodes followed by self-induced vomiting or use of dietetics (laxatives or purging methods) to prevent weight-gain and initiate weight-loss (Pollock-BarZiv, 2005; Takii, Uchigata,

Tokunaga, Amemiya, Kinukawa, Nozaki, Iwamoto & Kubo,

2008). Important to note is that while many patients with

diabetes meet the criteria for binge eating and bulimia together,

having binge eating tendencies without purging habits is more

commonly found; making binge eating the most serious and

prevalent eating disturbance in populations of individuals with

diabetes (Takii, Komaki, Uchigata, Maeda, Omori & Kubo,

1999). Additionally, studies have found that approximately 60

to 80 percent of females with diabetes report to experiencing

frequent binge eating episodes (Hillege et al., 2008).   Recent

studies have also found that bulimia occurs more frequently

in populations with diabetes due to strict treatment regimens,

heightened emphasis on food, and coinciding weight gain via

insulin therapy (Blouin, Bushnik, Braaten & Blouin, 1989;

d'Emden et al., 2013; Pollock-BarZiv, 2005; Quick et al., 2012).

Although binge eating and bulimia both cause serious health

complications, Takii, Uchigata, Tokunaga, Amemiya, Kinukawa,

Nozaki, Iwamoto, and Kubo (2008) found that females with co-

morbid diabetes and bulimia suffered from poorer metabolic

control and greater long-term health complications than those

with binge eating alone.

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Diabulimia

The coexistence of an eating disorder and diabetes
is often referred to as "diabulimia" (Philippi et al., 2013).
However, unlike common eating disorders, diabulimia often
is associated with a specific behaviors attributed to individuals
with diabetes alongside typical purging or eating disturbances
(Hillege et al., 2008; Philippi et al., 2013; Pollock-BarZiv et
al., 2005). Although currently seen as a controversial term
due to the emphasis on only one disorder (bulimia) out of
the spectrum experienced by populations of individuals with
diabetes, diabulimia highlights both the association of eating
disorders alongside diabetes and the role that insulin therapy
plays in the weight management processes of diagnosed
females (Philippi et al., 2013). A defining trait of diabulimia
is intentional medication misuse via the "skipping" of insulin
injections (insulin omission) in order to lose weight gained
by insulin therapy treatments (Hillege et al., 2008). The
following section will further expand on the broad scope of
associated consequences concerning insulin omission in female
populations with diabetes.

Intentional Medication Misuse

In order to combat health complications associated with

diabetes (the lack of insulin-producing cells in the pancreas),

patients use artificial insulin injections to regulate the glucose

levels in their bodies to prevent short-term illness and long-

term health complications (d'Emden et al., 2013; Bilous &

Donnelly, 2010). In addition to glucose regulation, insulin

injections can also cause significant weight gain that results

in larger body mass index measurements (BMI) (d'Emden et

al., 2013; Grylli et al., 2005; Philippi et al., 2013; Takii et al.,

1999). Insulin treatments are believed to increase the risk of

eating disorders in diagnosed adolescent female populations

due to the cycle of weight loss at disease onset, weight gain

following insulin dosage increases as the patient ages, and

the trend towards higher BMI measurements at key stages

of adolescence as a result of insulin therapy (d'Emden et al.,

2013; Hillege et al., 2008). Hillege, Beale and McMaster (2008)

theorized that weight gain resulting from insulin therapy may

also create an alternative cycle of self-control, binge eating, and

purging due to the overwhelming societal standard for peer-

referenced bodily appearance; this causes females with diabetes

to risk eating disorder behaviors despite having a chronic (and

potentially fatal) medical condition. As a result, many females

with diabetes intentionally "omit" or manipulate their insulin

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treatments in hopes of preventing weight gain and losing

"excess" weight (Hillege et al., 2008).

Insulin Omission

Due to the association between insulin therapy and

weight gain, many females with diabetes have been found to

omit insulin injections in favor of maintaining a lower weight—

often in addition to other dietary or purging methods (Hillege

et al., 2008; Philippi et al., 2013). Additionally, insulin omission

is seen as a simple, readily available, and private avenue to

weight loss by diagnosed individuals who may not be struggling

with body image or increased BMI concerns as well (Colton et

al., 1999; Hillege et al., 2008). By restricting insulin, diagnosed

individuals allow glucose to build up in the bloodstream

causing hyperglycemia (high blood glucose) that results in

glucose (and calorie) excretion via urination and eventual

weight loss (Philippi et al., 2013). Consequently, insulin

omission not only lowers weight, but increases the chances

of eating disorders by nine times, creates a 3.2 times higher

mortality risk than that within the general public, and causes

severe long-term health consequences resulting from self-

inflicted ketoacidosis (buildup of toxic acids [ketones] in the

bloodstream, usually controlled by insulin hormones) (Colton

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et al., 1999; Philippi et al., 2013; Pollock-BarZiv et al., 2005).

Health Consequences of Insulin Omission

Clinical eating disorders, even in mild forms, have serious consequences when combined with type 1 diabetes; however, early-onset micro-vascular and macro-vascular damage are primary concerns for clinicians treating diagnosed individuals who choose to omit insulin or perform other purging methods (d'Emden et al., 2013). Potential long-term consequences of insulin omission (or misuse) include heart, vascular, and kidney disease; retinopathy, and neuropathy (Takii et al., 2008). The avoidance of acquiring diabetic retinopathy (presence of micro-aneurysms or dot hemorrhages in the eye that result in blindness) and diabetic nephropathy (presence of micro-albuminuria in the kidneys) resulting from ketoacidosis are often given the greatest concern due to the long-term, irreversible consequences of each (Pinhas-Hamiel, Hamiel, Greenfield, Boyko, Graph-Barel, Rachmiel, Lerner-Geva & Reichman, 2013; Powers et al., 2012; Takii et al., 2008).

Conclusion

The previously examined studies have found that individuals (particularly adolescent females) with type 1 diabetes not only experience twice the likelihood of depression

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and general mental illness; but an increased likelihood of negative body perceptions, suicidal thoughts and eating disorder behaviors than the general public. The frequent co-morbidity of diabetes and mental health complications create external and internal stressors for diagnosed individuals, often resulting in negative coping mechanisms such as eating disturbances and suicidal inclinations. Individuals with diabetes are also found to have significantly lower perceptions body image; resulting in low self-esteem, low self-regulation, and low self-efficacy. From this, adolescent females with diabetes often adopt detrimental habits, behaviors, and thoughts such as suicidal attitudes and eating disturbances.

The nature of treatments for diabetes also creates a higher susceptibility concerning the adoption of eating disorders and medication misuse. Additionally, adolescent females with diabetes face higher rates of mortality and long-term health complications as a result of insulin omission and manipulation. Thus, female adolescents diagnosed with diabetes experience higher rates of mental illness and distorted perceptions of body image, creating an inability to cope effectively with external and internal pressures resulting in negative coping methods, increased frequency of disordered

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eating, and increased intentional medication misuse than the

general public.

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The Use of Cognitive Interventions in Reducing the Effects of Ego-Depletion

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Intuition: The BYU Undergraduate Journal of Psychology

Abstract:
Acts of self-regulation, the controlling of behavior to obtain long-term goals, deplete a common mental resource that reduces the capacity for further self-regulation, this depletion is known as ego-depletion (Baumeister, 2014; Fischer, Kastenmüller, & Asal, 2012; Hagger, Wood, Stiff, & Chatzisarantis, 2010; Vohs et al., 2008). The effects of ego-depletion are linked to increases in risk-taking, subjective fatigue, and failure to resist temptation, which impede progress towards accomplishment of any long-term, self-regulatory goal. The mental processes of self-regulation and general cognitive function are intrinsically connected as they both deplete the same mental resource and induce ego-depletion. Magnetic resonance imaging (MRI) has shown that both these mental processes occur in the prefrontal cortex of the brain, implicating these as interconnected mental activities (Hare, Camerer, & Rangel, 2009; Harris, Hare, & Rangel, 2009; Hedgcock et al., 2012). This review investigates the underlying principles of cognitive interventions that successfully reduce the effects of ego-depletion by analyzing strategies that either shift attention away from self-regulation tasks or prime individuals to increase performance, despite a state of ego-depletion.

On an average day, people make decisions that range from instantaneous easy choices to elaborate, consequential, and potentially life-changing decisions. Conflict arises when a person's automatic desires do not align with goals he or she has made. In such instances, a person utilizes willpower or self-regulation, the ability to exert control over automatic, impulsive desires or behaviors and replace them with behaviors associated with achieving long-term goals or standards (Baumeister, 2014; Fischer, Kastenmüller, & Asal, 2012; Hagger, Wood, Stiff, & Chatzisarantis, 2010; Vohs et al., 2008). Self-regulation has been conceptualized by psychologists to occur in two-stages; conflict-identification and behavior implementation (Alberts et al., 2007; Alberts et al., 2008). A person first identifies the difference between immediate desire, resulting impulsive behavior and a more positive (but long-term) goal, then implements behaviors that either correspond to the immediate desire or the long-term goal (Hedgcock, Vohs, & Rao, 2012; Hoffman, Baumeister, Förster, & Vohs, 2012). Self-regulation is thus a cognitive process that involves deliberation between different enticing behaviors that have either immediate or long-term benefits.

Studies on the neurological components behind self-

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regulation, where subjects engaged in activities requiring self-regulation, found that brain activity increased in the rostral middle frontal gyrus (rMFG), dorsolateral prefrontal cortex (dlPFC), and ventromedial prefrontal cortex (vmPFC) (Hare, Camerer, & Rangel, 2009; Harris, Hare, & Rangel, 2009; Hedgcock et al., 2012). All three of these areas in the brain occupy the same general region of the prefrontal cortex, an area associated with planning complex cognitive behavior. This commonality of location amongst brain regions helps explain the relationship between goal-making, goal-keeping, and self-regulation in decision making. Self-regulation as a mental process is a necessary component of goal-keeping, especially when an individual is tempted with options counter-productive to his or her planned goals. The importance of self-regulation increases considering the potential negative effects an individual may face should he or she fail to accomplish important goals. Unfortunately while self-regulation is important it is not inexhaustible.

The act of exercising self-regulation consumes a limited mental resource impairing subsequent self-regulatory activity in a phenomenon known as ego-depletion (Baumeister, 2014; Hagger et al., 2010; Vohs et al., 2008). The term ego-

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depletion references the Freudian concept of the ego, a person's ability to mediate between short-term carnal desires and long-term morally responsible goals. This phenomenon poses a problem for any individual whose long-term goals might often conflict with everyday temptations or short-term immediately gratifying behaviors (e.g., those struggling with addictions). Some external factors, such as the presence of others, personality traits, and alcohol intake, affect the success of self-regulation in inhibiting the immediate gratification of automatic desires (Hoffman et al., 2012). Ego-depletion typically occurs after repeated self-regulatory activity, regardless of social context (Hoffman et al., 2012). Additionally, physical and mental fatigue are both associated with ego-depletion, as experienced by people who continually exercise self-regulation (Hagger et al., 2010; Vohs et al., 2008).

It is unknown if fatigue is the result of ego-depletion or a mediator of its effects, but the effect of ego-depletion on subsequent self-regulatory activity is always negative. This negative effect poses a problem for individuals in physically or mentally demanding professions, such as health care, that expend self-regulation resources (Hagger et al., 2010). Mental fatigue implicates a connection between the phenomenon of

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ego-depletion and cognitive function (Hagger et al., 2010).
There are many factors that influence the rate at which an
individual experiences the lowered capacity to exercise self-
regulation, or ego-depletion, but all of them share a reliance
upon cognitive activity. An investigation of the underlying
neurophysiological components at work during the processes
of self-regulation and other cognitive activities is necessary to
understand the relationship between these processes.

Given that magnetic resonance imaging (MRI) literature
on the subject of self-regulation has found a positive correlation
between self-regulation and activity in the prefrontal cortex,
a connection between self-regulation and cognitive function
in relation to decision making is logical to assume (Hare et
al., 2009; Harris et al., 2009; Hedgcock et al., 2012). Cognitive
function is evident in the mediating influence that the presence
of others has on the effect of self-regulation, on the inhibition
of behavior, and in ego-depletion experienced by individuals
after making many choices (Hoffman et al., 2012; Vohs et al.,
2008). Activities that restore or aid an individual's ability to
effectively make use of cognitive function are likely useful in
restoring self-regulatory power as well (Alberts et al., 2007;
Barber & Munz, 2011). Ego-depleted individuals often do

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not have a problem recognizing the conflict between short-term gratification and long-term goals, but suffer from a reduced capacity to implement self-regulatory behavior and have been found to benefit from sufficient consistent sleep, which restores this cognitive capacity (Barber & Munz, 2011; Hedgcock et al., 2012). Additionally, cognitive activity can lead to ego-depletion, such as in individuals tasked with mentally reenacting the accounts of others who engaged in self-regulatory behavior (Ackerman, Goldstein, Shapiro, & Bargh, 2009). Even when individuals were only tasked with reading accounts of others engaged in self-regulatory behavior, they experienced a boost in self-regulatory performance (Ackerman et al., 2009). Just as cognitive function draws from the same common resource as self-regulation, strategies that rely on cognitive function also decrease the effects of ego-depletion.

Although psychologically restoring activities such as sleep, good diet, and the support of others restore self-regulatory power, they cannot immediately decrease the effects of ego-depletion (Barber & Munz, 2011). The use of cognitive interventions such as attentional shifting, priming oneself with inspirational accounts of self–control, and the activation of persistence reduce ego–depletion and improve

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self–regulation. This literature review discusses the negative effects of ego-depletion, the connection between self-regulation, ego-depletion, and cognitive function, and the cognitive interventions that reduce ego-depletion and its effects. The use of cognitive intervention to reduce ego-depletion may aid individuals in accomplishing long-term goals more effectively and better help them resist daily, tempting, but negative short-term alternatives.

The Negative Effects of Ego-depletion

It is useful to review the phenomenon of ego-depletion within the context of the strength model of self-regulation and the specific mechanisms behind its occurrence before examining its negative effects. Ego-depletion is an impaired state that an individual may enter when the ability to inhibit or regulate behavior is compromised due to prior inhibition or exercise of self-regulation (Baumeister, 2014; Hagger et al., 2010). The key theoretical tenet that has been reviewed in the literature to explain the occurrence of this phenomenon is that ego-depletion reflects the expenditure of a common resource that the mind draws upon to fuel self-regulation (Baumeister, 2014; Hagger et al., 2010). An analogy comparing this process to drawing water from a well to irrigate crops proves useful:

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the more water drawn from the well (prior self-regulation), the less water that will remain for future crop use (ego-depletion), ultimately leading to withered produce (negative outcomes).

In examining the factors that contribute to the occurrence of ego-depletion, it was found that the duration of prior self-regulation does not influence the magnitude of resulting ego-depletion (Baumeister, 2014; Hagger et al., 2010; Hofmann et al., 2012). The strength of the desire behind impulsive immediately gratifying behaviors determined whether ego-depleted individuals would exercise subsequent self-regulation or not (Baumeister, 2014; Hagger et al., 2010; Hofmann et al., 2012). Additionally, the occurrence of ego-depletion depends on the fulfillment of general rather than specific criteria as evidenced by individuals experiencing similar ego-depletion effects after performing different tasks such as mentally reenacting an example of self-regulation or holding up a weight for as long as possible (Ackerman et al., 2009; Alberts et al., 2008). The type of self-regulatory task does not matter in eliciting ego-depletion, and other types of tasks, such as making choices, have also been shown to produce the state of ego-depletion in individuals (Baumeister, 2014; Hagger et al., 2010; Vohs et al. 2008). Just as ego-depletion

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is a generalizable phenomenon, the negative outcomes of ego-depletion can manifest themselves in diverse areas of an individual's life.

When an individual enters a state of ego-depletion, he or she becomes subjectively fatigued as a result of the depletion of a common energy resource, which then impairs future decision-making as well as self-regulation (Baumeister, 2014; Hagger et al., 2010; Vohs et al. 2008). This impairment of decision making ability, combined with a lowered capacity for self-control, explains the high positive correlation between ego-depletion and engagement in risky behaviors (Fischer et al., 2012; Vohs et al. 2008). Risky behavior is best defined as "unnecessary" risks or behaviors that provide pleasure in the immediate future but ultimately has long-term consequences, examples of which include taking harming recreational drugs, responding violently when provoked, and engaging in inappropriate sexual activity (Baumeister, 2014; Fischer et al., 2012; Hagger et al., 2010). In a study by Hoffman et al. (2012), several traits and situational factors were identified that negatively impacted an individual's ability to self-regulate, alcohol consumption being one of them (see Appendix A). Consumption of alcohol might not only be a situational factor

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that reduces an individual's ability to self-regulate, but might also occur as a risky behavior engaged in as a result of prior ego-depletion (Fischer et al., 2012; Hoffman et al., 2012). A repetitive cycle is thus formed, where an ego-depleted individual is more likely to engage in risky behavior, such as irresponsible alcohol consumption, which then further impairs the ability to exercise self-regulation, leading to more risky behaviors and self-endangerment.

The dangers of ego-depletion are apparent and present a serious obstacle to any individual who relies on the ability to exercise self-regulation to accomplish long-term goals. The absence of self-regulation in an individual would lead to a life whose goal would be to satisfy any and all immediate desires that would arise, much like the way Freud conceptualized an individual motivated entirely by the id component of their ego (Hagger et al., 2010). Although ego-depletion does not represent a complete absence of self-regulatory power, it is closer to that extreme of the spectrum than to complete self-control (Baumeister, 2014; Hagger et al., 2010; Fischer et al., 2012). To better understand how the negative outcomes of ego-depletion may be reduced, a review of the mental and neurological components of the self-regulation process is

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needed.

Self-regulation, Ego-depletion, and Cognitive Function:

An Interplay

Self-regulation and accompanying ego-depletion do not occur in isolation from other mental processes in the brain of an individual. Just as many parts of the brain are interconnected and work in unison as an individual carries out mental tasks, self-regulation is also an integrated process. A growing body of MRI literature relating to self-regulation has found that during self-control activities, areas of the prefrontal cortex activate, indicating a strong connection between self-regulatory behaviors and cognitive function (Hare et al., 2009; Harris et al., 2009; Hedgcock et al., 2012). Specifically, self-regulation seems to involve two distinct but connected processes. The first process involves the vmPFC where different factors, such as health and taste in food options, are given relative importance (Hare et al., 2009). The second process involves the dlPFC where the encoded weight of importance of the different factors underlying a self-regulatory choice, such as whether health is more important than taste in food options, are modified (Harris et al., 2009). Thus, when confronted with a choice between a tasty but fattening snack, and a healthy but

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less-satisfying food option, the value of each factor would be computed in the vmPFC of an individual. If the goal of this individual is to lose weight, then the earlier values of the two food options are modified by the dlPFC to reflect the long-term dieting goal of the individual, enabling self-regulatory function (Hare et al., 2009). Without value modulation by the dlPFC, self-regulation would be impossible and ego-depletion may be a reflection of reduced cognitive capacity as well as self-regulatory capacity (Hare et al., 2009; Harris et al., 2009). Self-regulation is heavily connected to these cognitive factors of planning, making value judgments, and executive function.

Another connection between self-regulation, ego-depletion, and cognition is seen in processes that both restore and strain cognitive function. Barber and Munz (2011) found that psychological strain decreased and self-regulatory performance increased when individuals had sufficient, consistent sleep during a week. Psychological strain, as measured in this study, was operationalized as a reflection of an individual's own "psychological appraisal of self-regulatory depletion" (Barber & Munz, 2011, p.318). Given the self-report nature of this measure of strain, individuals are cognitively aware of when their self-regulatory capacity is depleted and

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when it is restored after sufficent, consistent sleep. Additionally, increases in self-regulatory strength predicted decreases in psychological strain, which is not only a direct result of the restorative effects of sleep, but may also reflect the relief an individual may feel upon recognition of an increase in cognitive function as a means to cope with strain (Barber & Munz, 2011). While recognition of the role cognitive function plays in self-regulation may affect self-regulatory performance, other cognitive processes, such as mental simulation and contemplation of future events, certainly do have an effect.

Ego-depletion, according to the strength model of self-regulation, is usually a product of prior self-regulation, but similar reductions in self-regulatory behavior were observed in individuals tasked with prior decision-making (Baumeister, 2014; Hagger et al., 2010; Vohs et al., 2008). In three separate studies, cognitive processes, such as taking the perspective of another, making choices, and considering future choices decreased subsequent self-regulatory performance (Ackermen et al., 2009; Khan & Dhar, 2007; Vohs et al., 2008). Such findings illustrate that cognitive function must draw from the same resource as self-regulation, which is not a surprise given both mental processes occur in approximately the same region

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of the brain. Additionally, the level of separation between an individual and the cognitive task involved–such as whether an individual was required to take the perspective of another individual exercising self-regulation or contemplated self-regulatory choices to be made in the future–was not a factor of whether ego-depletion occurred or not (Ackerman et al., 2009; Khan & Dhar, 2007).

Cognitive Interventions that Reduce Ego-depletion

Because self-regulation and cognitive function are intrinsically connected mental processes, they draw from the same mental resource to produce ego-depletion. Strategies reliant on cognitive intervention reduce the effects of ego-depletion. Generally, these strategies of cognitive intervention can be categorized into two distinct groups. The first group of strategies rely on shifting attention away from the task of self-regulation in ego-depleted individuals (Alberts et al., 2008; Hedgcock et al., 2012). The second group involves strategies that, instead of shifting attention away from a self-regulatory task, prime or inspire individuals to increase performance despite a state of ego-depletion (Ackerman et al., 2009; Alberts et al., 2007; Martijn et al., 2007; Schmeichel & Vohs, 2009). Although categorized into two groups, both share the same

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principle that in order to stabilize self-regulatory performance in an ego-depleted state, individuals need to utilize cognitive function to change or refocus their perception of the self-regulatory task to be completed (Alberts et al., 2007; Alberts et al., 2008; Hedgcock et al., 2012; Martijn et al., 2007; Schmeichel & Vohs, 2009). The underlying principle behind these cognitive interventions is that an individual uses cognitive function proactively to either avoid or decrease the effects of ego-depletion.

The first strategy group involves distracting one's attention from a self-regulatory task to focusing it on something else. The distractor can be unrelated to the self-regulatory task or associated with, but still distinct and separate from, the task, such as remembering that failure to perform a self-regulatory task will result in monetary loss (Alberts et al., 2008; Hedgcock et al., 2012). If the distractor is associated with the self-regulatory task—but not separate or distinct, then self-regulatory performance will not be stabilized in a state of ego-depletion (Alberts et al., 2008). For example, this could be seen in a dieter choosing to focus on how tasty a fattening snack is instead of their goal to eat healthier foods. The properties of the fatty snack are associated with the goal of eating healthier

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foods, but it is not distinct enough from this mental concept to improve self-regulatory performance and may actually be a decrement to performance. A better distractor would be to focus on something unrelated to the goals of the diet such as a calculation task (Alberts et al., 2008).

The second strategy group uses external examples of self-regulatory performances to enhance an individual's own performance in an ego-depleted state. Although external examples are used and may shift attention, the goal of this strategy is not to distract an individual's attention from a self-regulatory task. The principle in action is goal contagion, the assimilation of the goal of self-regulation from an external example by an individual (Ackerman et al., 2009; Martijn et al., 2007). Inspirational accounts of self-regulation improve self-regulatory performance regardless of whether an individual was induced to enter a state of ego-depletion or not (Ackerman et al., 2009; Martijn et al., 2007). However, the opposite effect was observed when non-depleted individuals were either tasked with taking the perspective of an individual who exercised self-regulation or to read examples of self-regulation considered to be extreme examples (Ackerman et al., 2009; Martijn et al., 2007). Such evidence suggests that this strategy is most effective

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when an individual is already in a state of ego-depletion and can easily relate to the external example of self-regulation without having to mentally simulate the perspective of the individual in the external example.

While the prior focus in the second strategy group revolved around using external examples of inspirational self-regulation to improve self-regulatory behavior, a similar boost in performance is seen when individuals are primed to activate internal, automatic sources of self-regulation enhancing traits. When individuals were primed with the personality trait persistence, self-regulatory performance was enhanced and expected ego-depletion effects from prior self-regulation were not observed (Alberts et al., 2007). Similar increases in performance were reported in individuals that were induced to reaffirm the personality traits that they believed themselves to possess (Schmeichel & Vohs, 2009). The common principle in effect is a reaffirmation of positive qualities individuals either desire to have or believe to already possess, which enhance self-regulation in a state of ego-depletion (Alberts et al., 2007; Schmeichel & Vohs, 2009). However, like previous strategies, the opposite effect was observed in non-depleted individuals that were primed with self-affirmation, indicating the presence

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of ego-depletion is a criterion for the success of this strategy (Ackerman et al., 2009; Martijn et al., 2007; Schmeichel & Vohs, 2009). The relative ease of inducing positive self-appraisal raises implications for the application of this strategy in an individual's daily life.

Implications

Effective strategies based on the principles behind these cognitive interventions are not dependent on an individual's capacity for self-regulation, but rather his or her willingness to use cognitive function to circumvent the effects of ego-depletion. Many common self-regulation goals, such as dieting, quitting smoking, or improving academic performance, would benefit from the use of easy to implement cognitive interventions. For example, when confronted with the temptation to leave the gym early due to the difficulty of exercises being performed, an individual can shift their attention from the exercises by mentally simulating or physically singing a favorite song. A skier intent on mastering a new technique at the end of a long day of skiing may reflect on how someone else in his or her situation accomplished the same goal. Alcoholics reminded throughout the day of the desire to drink could take a moment to read encouraging

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remarks made about traits others have observed in them, such as persistence, taken from meetings in support groups such as Alcoholics Anonymous as a means of inspiration to not give in to the desire to drink. The applications are numerous and may require adherence to the guiding principles of these cognitive interventions and creativity on the part of the individual. However, despite the benefits of using these cognitive interventions, traditional means of mental intervention, such as therapy and the support of loved ones, are still recommended for individuals who seek enduring changes in behavior.

Conclusion

Ego-depletion, as a result of prior self-regulation or cognitive function, is a severe impediment to the long-term goals of any individual who desires to change behavior or improve quality of life (Baumeister, 2014; Fischer et al., 2012; Hagger et al., 2010; Vohs et al. 2008). The reduced capacity to resist temptation and immediate gratification is a result of diminished resources needed for any subsequent self-regulation (Baumeister, 2014; Hagger et al., 2010). However, just as self-regulation and cognitive function are connected and rely on the same mental resource, interventions based in cognitive function reduce the effects of ego-depletion and improve self-

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regulatory performance (Ackerman et al., 2009; Alberts et al., 2007; Alberts et al., 2008; Hedgcock et al., 2012; Martijn et al., 2007; Schmeichel & Vohs, 2009). Cognitive interventions are most effective in ego-depleted individuals when they either shift attention away from a self-regulatory task or prime or inspire an individual to persist in self-regulatory behavior (Ackerman et al., 2009; Alberts et al., 2007; Alberts et al., 2008; Hedgcock et al., 2012; Martijn et al., 2007; Schmeichel & Vohs, 2009). Priming an individual involves the use of external accounts of successful self-regulation or inducing an individual to reaffirm the positive traits he or she believes to already possess (Ackerman et al., 2009; Martijn et al., 2007; Schmeichel & Vohs, 2009). Thus, the effects of ego-depletion can be overcome through effective use of cognitive interventions which require persistent adherence to these guiding principles and creativity in tailoring an approach by any individual to reach important life goals and resist temptation.

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Appendix A

Summary of conceptual framework and entry points for the main personality traits, situational factors, and further variables

- Trait Self-Control (-)
- Perfectionism (+)
- Entitlement (-)
○ Alcohol (+)
◆ Goal Importance (+)
◆ Number of Goals (+)

○ Presence of Others (+)

- Trait Self-Control (-)
- Perfectionism (+)
○ Enactment Models (-)

Conflict

○ Alcohol (+)
○ Enactment Models (-)
◆ Desire Strength (+)

+

Resistance (Self-Control)

−

Desire Strength

+

Behavior Enactment

- BAS (+)
- Trait Self-Control (-)
- Perfectionism (+)
○ Alcohol (+)
◆ Desire Duration (+)

- BIS (-)
○ Presence of Others (-)
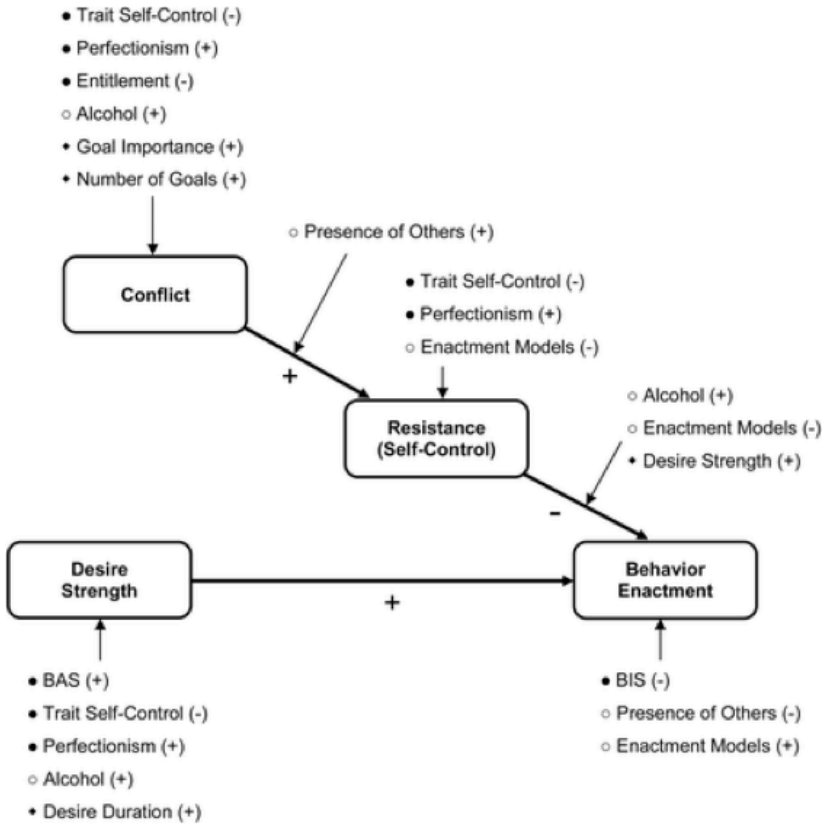○ Enactment Models (+)

Figure 1. Summary of conceptual framework and entry points for the main personality traits (filled circles), situational factors (empty circles), and further variables (diamonds). Plus and minus signs indicate positive and negative relationships, respectively. Positive (+) moderator effects on the resistance-enactment pathway indicate that the strong negative relationship

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between resistance and enactment becomes weaker (i.e., more positive) for high rather than low values on the moderator variable, whereas negative (−) moderator effects indicate that the negative relationship becomes stronger (i.e., more negative). BAS = behavioral activation system; BIS = behavioral inhibition system. Adapted from "Everyday temptations: An experience sampling study of desire, conflict, and self-control," by W. Hoffman, R. F. Baumeister, G. Förster, and K. D. Vohs, 2012, Journal of Personality and Social Psychology, 102(6), p. 1331. Copyright 2011 by the American Psychological Association.

Homosexuality and Religion: The Conflict

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Intuition: The BYU Undergraduate Journal of Psychology

Abstract:
Responding appropriately to religious teens and young adults who are homosexual or experience sexual identity confusion can be daunting. They often seem to be forced to choose between two essential and inseparable facets of their lives. Although self-expression can be healthy, many often feel incapable of identifying any sort of self. Many also report feeling unaccepted by everyone they meet. This may also lead them to develop both a disdain for professional counseling as well as reluctance to reach out to friends and family. This review has three main goals: (a) to develop an understanding of how same-sex attraction and religion conflict in the minds of young adults, (b) to review ways in which psychologists have been successful and unsuccessful in addressing the conflict, and (c) to recommend specific ways to empower and foster the development of young adults who experience the conflict.

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In the last 10 years the conflict between lesbian, gay, bisexual, transgender, and queer (LGBTQ) activists and religious groups has escalated alarmingly in the United States and elsewhere in the world (Rodriguez, 2010). In one study, 72% of Christian organizations condemned homosexuals and labeled homosexuality an abomination (Herek, Kimmel, Amaro & Melton, 1991). At the same time, same-sex attraction and religiosity has also become a more common source of conflict within individuals, especially adolescents and young adults (Kubicek, McDavitt, Carpineto, Weiss, Iverson, & Kipke, 2009). For example, three out of four LGBTQ individuals say that they grew up in religious homes (Halkitis, et al., 2009). Because traditional religious beliefs are often considered directly in conflict with homosexual behavior and, in some cases, even with mere attraction to the same sex, the roots of the conflict are plain (Yarhouse & Tan, 2005).

In sexual and gender minority youth (SGMY) suicidal ideation is twice as high as in heterosexual youth (Haas et al., 2011; King, Semlyen, Tai, Killaspy, Osborn, & Popelyuk, 2008 ; Sherry, Adelman Whilde, & Quick, 2010). Haas and colleagues (2011) suggested that the rates can only be approximate, as sexual orientation is not routinely reported on death records.

These suicides, although poor choices made by individuals in dark moments, to some degree reflect psychologists' failure to address the target population. As part of their goal to help integrate all benign aspects of a personality, psychotherapists should endeavor to better understand both the nature of this conflict and the methods most successful in finding reconciliation.

Specific Conflicts Within Religious LGBTQ Individuals

In many religions, scripture and doctrine are interpreted to strictly prohibit any form of homosexuality (Kubicek et al., 2009; Yarhouse & Tan, 2005). The tension between an individual's religious and homosexual thoughts, feelings, or actions can result in stress, depression, continual fear of damnation, low self-esteem, and feelings of worthlessness (Barton, 2010; Kubicek et al., 2009). One participant in Kubicek et al.'s (2009) study reported: "I am always committing a sin just because I'm being me." (p. 612). This individual also reported feeling alone (Kubicek et al., 2009), despite the large number of religious LGBTQ individuals who shared similar feelings (Barton 2010; Haas 2011; Halkitis et al. 2009; Robinson 1999; Sherry et al., 2010).

Robinson (1999) highlighted several other common

elements in the development of a gay identity in men besides loneliness and conflict. He found that inability to understand one's homosexual desires created inner turmoil, accompanied by frustration and cognitive dissonance, which refers to stress that occurs when one's actions do not align with one's thoughts and feelings. Yarhouse and Tan (2005) similarly found that the conflict persists because the individual's life experiences often are not understood outside of a spiritual context. A gay identity often forms within pre-existing, oppositional religious paradigms. (Robinson, 1999; Yarhouse and Tan, 2005).

Interpreting and Applying Religious Doctrine

Religious opposition to homosexuality stems from many sources. Religious texts, such as the Bible, directly forbid homosexual activity, creating the basis for tension between traditional religion and homosexuality. Most religious teachings focus on how people should act, but even for pious LGBTQ individuals, physical expressions of their homosexuality seem to occur naturally (Halkitis 2009; Kubicek et al., 2009; Robinson 1999). From this perspective, God may be viewed as essentially asking them to be something different from what they naturally are. Furthermore, the imagined punishment for the defiance of God's will on this matter is severe, such as eternal damnation

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or enslavement (Halkitis 2009; Kubicek et al., 2009; Robinson 1999).

      Attacks from people of faith. Another facet of the inner conflict often expressed by religious LGBTQ individuals is best categorized as pressure from other people of faith, whether of their own faith or another faith. Many Christians who speak out about their faith are not hesitant to declare their belief that those who identify as homosexual are sinners. Barton (2010) found that many LGBTQ individuals report having been ostracized, criticized, or yelled at, even during church services. One participant stated: "You wish that you could go to church sometimes and not be afraid of just being told what a horrible person you are. Even if they don't realize that they've got a gay person sitting in their pew…you want to stand up and scream, 'You've got it so wrong! Where did you go to seminary?'" (p. 466). To some Christians, the mere suggestion that homosexuality and Christianity can be compatible is absurd. Adamczyk and Pitt (2009) found that many Christians considered the growing acceptance of homosexuality a threat to their faith and felt the need to defend it aggressively (see also Sherry et al., 2010). Such passion about doctrinal truth can turn religious LGBTQ individuals into targets, even within the

individual's own family. Yarhouse and Tan (2005) found that some parents refused to acknowledge the reality of their child's homosexual feelings but threatened to withhold financial aid or other care regardless.

The marriage test. Another conflict that often arises, especially among mainstream Christian LGBTQ individuals, stems from the issue of marriage. Because of the importance of traditional marriage, initiating and maintaining a successful heterosexual marriage may weigh heavily on the religious homosexual individual. One of the participants in Robinson's (1999) study reported that his feelings about his marriage were inescapably influenced by the conflict between his religion and his homosexuality. Speaking for himself and other gay men he knew, he states: ". . .we were under the false assumption that after getting married our homosexual feelings and thoughts would disappear" (p. 17). Only after being married a whole year did he begin to think that his homosexual feelings might be permanent.

Another of Robinson's (1999) participants reported not only thoughts that his homosexuality was permanent, but that they caused him to questions the potential of his marriage to succeed. Despite his happiness in marriage and the enjoyment

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of sexual relations with his wife, he still had strong desires to have sex with men. These feelings prompted questions: "Am I born this way? Am I going to be this way for the rest of my life? Should I be getting a divorce because I can't deal with what is going on?" (p. 18)

Questionable Responses to a Religious LGBTQ Identity

There is little dispute that LGBTQ teens and adults are in need of support, but many of those efforts are inappropriate for those who both identify as religious and experience same-sex attraction. Established therapeutic forms that are successful for those who are only religious but not LGBTQ or vice-versa are largely unsuccessful for those who are both (Herek et al., 1991; Rodriguez, 2010; Rosik & Popper, 2014; Sherry et al., 2010). This is because the religious and queer identities are conflicting, yet both are so integral to the personality. In most other cases, therapy that promotes complete acceptance of homosexuality usually progresses smoothly since there is no religious background to resist it (Rosik & Popper, 2014; Rutter, 2012). Likewise, counsel from religious leaders to simply increase piety or repent and be forgiven may be more constructive when the recipient is not also told he or she is sinning continuously because of his or her homosexual

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thoughts and feelings (Kubicek et al., 2009; Robinson, 1999).

Pitfalls of Gay Affirmative Therapy

Gay affirmative therapy involves incremental acceptance of a homosexual identity (Rosik & Popper, 2014; Rutter, 2012). In the process, the client's ideas of marrying someone of the opposite sex and other expectations of a heterosexual lifestyle are meant to be discarded. According to Robinson (1999), gay affirmative therapy often causes more conflict and distress for the religious individual than it resolves. It is often effective in cases of non-religious LGBTQ individuals, as they approach therapy without any belief that homosexuality is inherently evil or unacceptable to God (Rosik & Popper, 2014; Rutter, 2012). Even if there are lingering parental counter-expectations or cultural inhibitions, they often are overcome without great difficulty (Rutter, 2012). Typically, the therapist encourages the individual to recognize that such inhibitions are not necessarily part of the self ¬– unlike same-sex attraction, which is treated as permanent (Rosik & Popper, 2014; Rutter, 2012) For those express them, religious ideas are often viewed as more deeply rooted in the self than sexuality is. For those raised as religious from infancy, religious ideas are often perceived as more real than secular ideas are (Barton, 2010;

Kubicek et al., 2009; Robinson 1999; Rodriguez 2010).

Reparative Therapy Is Not Realistic

Just as with gay affirmative therapy, any therapeutic approach that completely ignores one side of the sexuality-religion conflict will be ineffective at best. Because psychology and religion have historically been more at odds than psychology and homosexuality have been (Nelson 2009), therapies that favor religion at the expense of homosexuality are rare (Rosik & Popper, 2014). However, reparative therapy or change-oriented therapy is one approach that was at one time commonly practiced, at least in some Christian groups. It may have been effective with a relatively small number of clients who considered themselves as experiencing same-sex attraction, but not homosexual or bisexual (Rosik & Popper, 2014). This approach views an individual's homosexuality as a maladaptation to the environment the individual has encountered to that point in his or her life (Rosik & Popper, 2014). The approach rewards heterosexuality and punishes homosexuality through combinations of cognitive and behavioral techniques. Additionally, therapists may try to increase a gay man's masculinity or a lesbian's femininity by prescribing specific behaviors in order to form non-romantic

male-male or female-female bonding (Rosik & Popper, 2014).
These therapies tend to encourage clients to hide the conflict
between homosexuality and religion rather than attempting to
resolve it.

Recommendations for Clinicians

Psychotherapy, or the therapeutic application of
psychological principles, is frequently at odds with religion
and spirituality (Nelson, 2009). This is perhaps nowhere more
apparent than when dealing with religious LGBTQ clients
(Rodriguez, 2010; Sherry et al., 2010). However, this conflict
does not change the fact that psychotherapy can be very helpful
to such individuals. Sherry and colleagues (2010) argued
that such therapy must be focused on finding meaning in the
personal and social constructs of the self, including sexual and
religious identities. In this way, both the clinician and the client
may better understand the constructs that impede the client's
adjustment. Neither the religious identity nor the LGBTQ
identity should be ignored or identified as the "true" identity.
Sherry and colleagues further asserted that therapy models
that view the self as unitary are insufficient for application to
individuals whose self includes components that compete. In
the quest for a healthy self-identity, attachment to organized

religion is often discarded (Sherry et al., 2010). However, the maintenance of clients' religious identities may benefit from the continuance of spiritual practices that can be separated from the affiliated religion.

According to Rodriguez (2010), it is important that clinicians work within the paradigm that homosexuality and spirituality can simultaneously reside in an individual (see also Barton 2010; Kubicek et al., 2009). Rodriguez (2010) also suggested that a resurgence in the popularity of cognitive dissonance theory is timely because it may encourage clients to renegotiate their boundaries and definitions during therapy, lowering dissonance and anxiety levels caused by misaligned thoughts and behaviors. Rodriguez (2010) cautioned that changing religious belief is more complex than changing most other personal beliefs. Similarly, sexual identity is not simply changed at will like hair color is. Negotiating the boundaries between LGBTQ and religious identities is essential but, by itself, is not enough.

Conclusion

There are several common recommendations in published studies of sexual and religious identity. One of these is that clinicians be aware of local or easily accessible religious

groups that accommodate LGBTQ individuals (Barton 2010; Halkitis et al., 2009; Kubicek et al., 2009; Rodriguez, 2010; Sherry et al., 2010; Yarhouse & Tan, 2005). Despite the fact that members of a particular sect may be hesitant to attend services or to worship at places outside their own tradition, this recommendation has been helpful in many cases (Robinson, 1999; Yarhouse & Tan, 2005). Also, the literature commonly suggests that familiarization with the client's religious orientations will be an asset to therapists (Barton, 2010; Halkitis et al., 2009; Kubicek et al., 2009; Rodriguez, 2010; Sherry et al., 2010; Yarhouse & Tan, 2005). Not only does familiarization promote understanding between client and psychologist, but it may be critical to understanding the source of conflict. Yarhouse and Tan (2005) suggested that initial clinical assessment include simple questions of how the client's religious views inform how he or she deals with sexual identity issues.

Often religious individuals feel a loyalty to their particular religion that is a function of their perceptions of religious leaders, family, and peers (Sherry et al., 2010). However, the incompatibility of traditional religion and homosexuality promotes feelings of dual isolation within religious LGBTQ individuals (Kubicek et al., 2009; Sherry et

al., 2010). Only when they are in a position of sufficient power to renegotiate the boundaries of conflict will they determine what it means to be LGBTQ and religious (Robinson, 1999; Rodriguez, 2010; Sherry et al., 2010). This self-identified meaning may possibly be the only meaning that will permanently motivate and make sense to the individual as the course of their lives shifts. This way clients may discover a path and a lifestyle that they will feel confident in pursuing indefinitely. By affirming both conflicting identities and questing to find the personal meaning behind each, religious LGBTQ individuals are reinstated as the officiators of their own lives.

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Autonomy-Supportive Teaching and Student Motivation: A Closer Look at Applied Montessori Theory

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Intuition: The BYU Undergraduate Journal of Psychology

Abstract:
The degree to which students are motivated in their K-12 years can have a significant impact on their future opportunities for college, career, and community involvement. According to Deci and Ryan's (2000) Self-Determination Theory, students' internal motivation for their schoolwork forms from three central needs: autonomy, competence, and relatedness. These needs are best fulfilled if students have autonomy-supportive teachers (that is, teachers who invite student expression, encourage student exploration, and support students through both success and failure) and thwarted by controlling teachers (those who impose their viewpoint on the student and expect the student to conform to their expectations; Reeve et al., 2014). This literature review first describes the contrasting effects of autonomy-supportive and controlling teaching methods on students. Next it describes Montessori-school theory, which centers on student autonomy. Finally, it confirms that autonomy-supportive teachers in Montessori classrooms create significant differences in student experience and performance when compared to traditional classrooms.

An individual's education from kindergarten to 12th grade includes many formative experiences that affect the likelihood of higher education, a satisfactory career, and meaningful contribution to one's society. But even though these years are high stakes, many K-12 students remain marginally motivated in their pursuit of an education. They neglect assignments, avoid building relationships with teachers, and are content to remain in lower-level classes.

A teacher's instructional style can affect student performance. Research has categorized teaching styles into two major categories: controlling teaching and autonomy-supportive teaching. Teachers who focus predominately on their own perspective rather than the students' are considered controlling teachers, and may pressure student to conform to their expectations (Reeve, 2009). Conversely, autonomy-supportive teaching is exemplified by teachers who sympathize with students' viewpoints, invite student expression by facilitating open communication, and support students through success and failure (Reeve, 2009; Reeve, Jang, Carrell, Jeon, & Barch, 2004).

When compared to the controlling style, autonomy-supportive teaching consistently produces better learning

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outcomes. This is particularly the case in Montessori schools, where autonomy-supportive teaching operates as a central tenet of Montessori theory. Students enrolled in such programs show elevated levels of engagement, flow, and academic achievement as compared to students enrolled in more traditional settings (Dohrmann, Nishida, Gartner, Lipsky, & Grimm, 2007; Lillard, 2012; Rathunde & Csikszentmihalyi, 2005a). The purpose of this literature review is to first establish the contrasting effects of autonomy-supportive and controlling teaching, then to show that Montessori-schools are characterized by a higher incidence of autonomy-supportive teachers as compared to traditional school systems. Finally, I will summarize outcomes of this difference.

Self Determination Theory and Student Motivation

Deci and Ryan (2000) and Neimiec and Ryan (2009) conjectured that humans have innate needs for autonomy, competence, and relatedness, which, when satisfied, contribute to the internalization of motivation (Autonomy refers to perceiving one's behavior as one's choice, that is, self-produced and not forced by other factors; Deci & Ryan, 2000). Competence refers to one's perception that one has the skills adequate to complete a task and feels capable of completing

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it (Deci & Ryan, 2000). Relatedness refers to the need to feel connected to and understood by others (Deci & Ryan, 2000). In school settings, this need involves the student's perception that the teacher respects and values her or him (Niemiec & Ryan, 2009). The degree to which the three needs are satisfied determines whether the student's motivation is internalized.

Deci and Ryan (2000) delineated intrinsic motivation from extrinsic motivation. Intrinsic motivation refers to being motivated by personal interest without external factors pressuring the individual to behave in a particular way. For example, intrinsic motivation might motivate one to explore a new area of town out of curiosity or engage in a new craft or project. Extrinsic motivation is much more common and refers to motivation that is instigated and maintained by external forces (Deci & Ryan, 2000; Niemiec & Ryan, 2009). Extrinsic motivation can be further categorized as external regulation, introjected regulation, identified regulation, and integrated regulation (see pg. 17, Table 1). External regulation is least autonomy supportive and is basic motivation by reward or punishment. An example is receiving a gold star for completing a homework assignment or a red frowny face for non-completion. Introjected regulation denotes motivation

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to preserve one's self-esteem. For example, a student may complete science homework in order to maintain a reputation as a good student or to avoid the guilt of not having completed her or his homework. Identified regulation represents a shift from externalized motivation to internal based on finding value in particular behaviors. An example is a student doing science homework because learning about science is perceived as a valuable endeavor. Integrated regulation occurs when a student engages in behavior that she or he perceives to be a central part of her or his identity. Under this mode, completing science homework occurs because of the student's intent to be a scientist someday, continuing a process of discovery that is of personal value. Niemiec & Ryan (2009) asserted that the more internalized the student's motivation the more success and satisfaction she or he will find in schoolwork.

Autonomy-Supportive and Controlling Teaching Styles Impact Students Differently

As mentioned previously, whether a teacher is autonomy-supportive or controlling may bear on whether the student's motivation is internalized or externalized. When teachers help their students satisfy the basic needs for autonomy, relatedness, and competence, students' internal

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motivation grows and they become more engaged in their learning (Niemiec & Ryan, 2009; Reeve, 2009; Reeve et al., 2014). Conversely, when teachers thwart satisfaction of the autonomy, relatedness, and competence needs, students show higher levels of amotivation, feel more controlled by their teachers, and are less likely to actively engage in learning (Deci & Ryan, 2000; De Meyer et al., 2014).

Researchers have demonstrated that a controlling teaching style can interfere with student learning, but an autonomy-supportive style is associated with lower stress and more self-directed learning. Reeve and Tseng (2011) assigned three groups of participants to different conditions—a no-narration condition, a controlling-narration condition, and an autonomy-supportive narration condition—and asked the three groups to complete a puzzle task. The authors found that participants in the autonomy-supportive narration group reported lower levels of stress than those in both the controlling-narration and the no-narration groups. In an experiment testing the effect of controlling teaching in a Physical Education setting, De Meyer et al. (2014) found that the negative effects of controlling teaching were present even when the incidence of controlling teaching was low. Surveying

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174 high-school sophomores, Mih & Mih (2013) found that autonomy-supportive teaching was related to students perceiving themselves as more self-efficacious and as better able to perform their academic tasks. Both measures predict for future academic success. Reeve et al. (2014) found that the differential effects of controlling and autonomy-supportive teaching styles were found cross-culturally.

Influences on Teachers' Choice of an Autonomy-Supportive or Controlling Style

Given the preponderance of findings favoring autonomy-supportive teaching, it seems reasonable to suppose that teachers would utilize the approach. However, teachers often exhibit controlling teaching in spite of the evidence favoring autonomy-supportive teaching (Kusurkar, Croiset, & Ten Cate, 2011; Reeve 2009; Reeve et al., 2004; Reeve et al., 2014;). Several factors may influence a teacher's choice to implement a controlling teaching style (see pg. 18, Table 2). First, personal beliefs about teaching style have a significant bearing on the choice. If teachers view controlling teaching as effective, easy to implement, and commonplace, they are more likely to implement it (Reeve et al., 2014). Second, how teachers perceive students plays a pivotal role in teaching style.

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For example, if teachers perceive that students are capable of growth, they are more likely to be autonomy-supportive in their teaching style (Leroy, Bressoux, Sarrazin, & Trouilloud, 2007). Conversely, if teachers perceive their students as not likely as having static ability, they are more likely to utilize a controlling teaching method (Leroy et al., 2007). Pressure from administrators also contributes to the likelihood of teachers exhibiting a controlling or autonomy-supportive teaching style (Leroy et al., 2007; Reeve, 2009). Leroy et al. (2007) found that, when teachers experienced external pressure (from national, state, or local standards for student learning, for example), their self-efficacy decreased, and they responded to the pressure by exerting pressure on their students. Conversely, when teachers reported having an autonomy-supportive administration, their self-efficacy increased and they were more likely to teach using an autonomy-supportive style.

Autonomy-Support as a Central Tenet of Montessori Theory

Acknowledging that administrative pressures have an impact on a teacher's decision to implement a controlling or an autonomy-supportive teaching style, administrative endorsement of autonomy-centered techniques could increase the acceptability and adoption of autonomy-supportive modes

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of teaching (Leroy et al. 2007; Maehr & Midgeley, 1991; Reeve, 2009). This typically occurs in Montessori schools, of which there are over 4,000 in the United States alone (Cossentino, 2005; Rathunde & Csikszentmihalyi, 2005a). The Montessori theory of teaching and learning centers on respecting the student's autonomy and right to explore (Lillard, 1996, 2005). According to Lillard (2005) and Malm (2004), in Montessori schools teachers "see" their students and allow them a wide range of exploration and expression (see pg. 19, Table 3).

Through observation and experimentation, Maria Montessori learned that supporting children's autonomy-centered drive for learning produced heightened their engagement in it (Lillard, 1996, 2005). Lillard (2005) listed the Eight Principles of Montessori Education, among which are (a) "learning and well-being are improved when people have control over their lives," (b) "people learn better when they are interested in what they are learning," and (c) "tying extrinsic rewards to an activity…like high grades for tests, negatively impacts motivation to engage in that activity when the reward is withdrawn" (p. 29). The principles focus on students' needs for autonomy, competence, and relatedness, thus closely dovetailing with Deci and Ryan's (2000) self-determination

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theory. The principles also assume the best about students—
that they are naturally curious, want to engage with their
environment in a productive way, and personally desire to
expand their knowledge and capacities.

The assumption that students desire knowledge
influences the layout and operational structure of Montessori
classrooms. These classrooms are enriched with educational
materials that engage students and help them learn through
self-directed play (Lillard, 1996, 2005). The teacher serves
primarily as a guide, setting clear limits and high expectations,
but leaving students free to experiment within those
expectations (Lillard, 2005). As such, instead of the top-down
method employed in traditional schools (where students
learn primarily via a teacher's transmission of information),
Montessori students learn through first-hand experience,
including collaboration with their peers (Lillard, 1996, 2005;
Rathunde & Csikszentmihalyi, 2005b). This model qualifies
as a student-centered learning environment (SLE; Smit, de
Brabander, & Martens, 2014). An SLE provides specifically
structured organization for students, including a wide variety
of activities; gives students an active role in their learning;
and restrains the teacher's role to that of coach and facilitator.

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Thus the needs for autonomy, competence, and relatedness are anticipated in theory and satisfied in practice, making the classroom experience a rewarding one for both teacher and student (Malm, 2004; Rathunde & Csikszentmihalyi, 2005b).

In a qualitative study reported by Malm (2004), Montessori teachers consistently mentioned their efforts to "see" the whole child, a vantage point that led to greater feelings of respect for the child and his or her freedom to explore. This perspective enhanced work satisfaction among teachers, with one teacher reporting, "This is the way I believe children should be treated," and another reporting, "This is the way I want to work, this is the way it should be" (p. 402). Moreover, as students felt their needs being met, Rathunde and Csikszentmihalyi (2005a) found that students reported feelings of warmth and loyalty to the Montessori system. Specifically, Montessori middle-schoolers felt supported by their teachers in their individual pursuits, safe from attack and criticism in the classroom, and respected in their desire to work on self-selected tasks.

Differences Between Student Experience in Montessori and Traditional School Settings

Though research on the effects of a Montessori

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education is limited, the existing research demonstrates benefits

that emerge from this autonomy-supportive environment

(Lillard, 2012; Rathunde & Csikszentmihalyi, 2005a). When

Montessori programs were compared to traditional programs,

researchers found higher levels of engagement, flow, and

academic achievement in Montessori programs (Lillard, 2012;

Rathunde & Csikszentmihalyi, 2005a; Smit et al., 2014).

Students' Experience of Engagement in Montessori and

Traditional Settings

Utilizing a timed response system, Rathunde and

Csikszentmihalyi (2005a, 2005b) assessed five classes of

Montessori students and six classes of traditionally schooled

students on their activity and engagement levels for several

weeks. They found benefits to those engaged in autonomy-

supportive Montessori classrooms. For example, when they

tested for the intrinsic motivation and interest in schoolwork,

Rathunde and Csikszentmihalyi (2005a) found that students

in Montessori schools reported 40% of their schoolwork to be

interesting and important to them. Students in a traditional

environment reported 24% of their work to be such. According

to the authors, "Montessori students spent approximately three-

and-a-half hours more per week than traditional students doing

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schoolwork they felt was interesting and important" (p. 363) a figure that, when extended over the entire school year, would be considerable.

Students' Experience of Flow in Montessori and Traditional Settings

Student engagement is closely related to the concept of flow, which is the experience of being highly engaged in an intrinsically motivated task to the point where individuals report an increased sense of clarity and control, and time seeming to speed up (Csikszentmihalyi, 1990). This experience is particularly salient when a student's ability and the difficulty of the task in which he or she is engaged are evenly matched (Csikszentmihalyi, 1990: Niemiec & Ryan, 2009). In Rathunde and Csikszentmihalyi's (2005a) study comparing Montessori students to traditional students, they found that Montessori students reported flow experiences while engaged in schoolwork 7% more often than their peers in traditional schools did. This meant that the Montessori students experienced flow approximately an hour-and-a-half more per week.

Academic Achievement in Montessori and Traditional Settings

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       Greater academic gains have been found for students participating in Montessori programs when compared to their traditionally schooled peers. Lillard (2012) examined academic achievement in preschool students. In classrooms matched for socioeconomic status, race, and age of students, the author found that the greater the fidelity of the program (i.e., the greater the involvement of Montessori theory), the greater the school-year improvement for students when compared to those in traditional programs. On measures of executive function (a combined measure of working memory, inhibitory control, attention, and flexibility), students in the Montessori programs gained 14 points across the year, while students in supplemented programs (programs with some elements of Montessori method integrated into a traditional school setting) gained 7-8 points, and students in traditional programs gained 2-5 points. In reading and vocabulary gains, students in so-called "high-fidelity" Montessori programs gained twice that of students in the other programs (11 points vs. 5-6 points).

       Lillard (2012) reported other gains by students in high-fidelity Montessori programs in applied-problem solving and social-problem solving, though not in theory of mind). The gains predicted enhanced success of the students in future

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social and academic endeavors (see Blair, 2002; Camilli, Vargas, Ryan, & Barnett, 2010). Dohrmann, Nishida, Gartner, Lipsky, and Grimm (2007) found long-term gains on tests of math and science in students who had attended Montessori elementary schools and later transitioned to traditional high school. Though gains in English and social studies were no greater than for students who had attended traditional elementary schools, the greater gains in math and science remained..

Limitations of the Research

Findings that indicate that Montessori students perform better than students in traditional programs should be considered preliminary (Lopata, Wallace & Finn, 2005; Rathunde & Csikszentmihalyi, 2005a). In fact, some research had indicated the opposite, namely, that Montessori students may underperform when compared to students in traditional programs. Lopata, Wallace & Finn (2005) compared scores on standardized tests between students enrolled in a Montessori program, a structured magnet school (a magnet school is a public school with a specialized curriculum that parents can choose to send their children to; a structured magnet school utilizes an education philosophy that is teacher directed and techniques emphasizing drill and practice and memorization),

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an open magnet school (a magnet school that utilizes an open-education philosophy intended to foster community responsibility), and a traditional non-magnet school. The authors reported that Montessori students outperformed those in the other schools in only one of 12 comparisons. Furthermore, the Montessori students underperformed in four comparisons, and their scores were not significantly different in the remaining seven comparisons. Montessori students performed especially poorly on tests of language arts. Such results suggest that, although there may be a qualitative difference in students' experience of school between Montessori programs and others (see Rathunde & Csikszentmihalyi, 2005a), actual academic gains may not be as different as Montessori educators would like to believe.

Conclusion

The research I have reviewed here suggests that teachers with a controlling teaching style reasonably might be encouraged to adopt an autonomy-supportive style (Kusurkar et al., 2011; Leroy et al., 2007; Niemiec & Ryan, 2009; Reeve, 2009; Reeve et al., 2014). A crucial way to do this is by overturning the beliefs that motivate the controlling teaching style. Many teachers believe that the controlling teaching style is normative,

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effective, and easy to implement (and, thus, conversely that the autonomy-supportive style is divergent, ineffective, and difficult to implement), (Reeve, 2009; Reeve et al., 2014). Furthermore, when teachers feel pressured by administrators, they are more likely to pressure their students, withholding autonomy support and becoming more authoritarian (Leroy et al., 2007). As teachers learn the student's perspective, become more patient with the student's struggles, and nurture the student's internal motivational resources, the student's needs for competence, relatedness and autonomy will be met more effectively (Niemiec & Ryan 2009; Reeve, 2009). Though research on the impact of Montessori school theory on student outcomes is not yet definitive, the autonomy-supportive nature of these programs points to the possibility of a more positive (and thus more motivating) school experience for students. When involved in autonomy-supportive programs such as the Montessori approach, students will engage more directly in the learning process and likely will experience greater academic success.

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Appendix A

Tables

Table 1

Types of Extrinsic Motivation Progressing From the Most-externalized Form to the Least-externalized Form, (adapted from Niemiec and Ryan, 2009)

	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation
Associated Processes	Individual values external rewards and punishments	Individual satisfies internal contingencies; ego soothing	Finds value/importance in an activity	Synthesizes activity with other aspects of self
Perceived locus of causality	External	Somewhat External	Somewhat Internal	Internal

Note. Autonomy increases from right to left

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Table 2

Seven Reasons Why Teachers Adopt a Controlling Motivating

Style Towards Students. (Adapted from Reeve, 2009)

Pressure from above	•Teachers inherently occupy a powerful role, which affects teacher-student interactions •Teachers feel personally accountable for student performance •A controlling teaching style is culturally valued •The notion of being 'in control' is sometimes equated to providing a structured learning environment for students
Pressure from below	•Passive student behavior often elicits a controlling teaching style from teachers
Pressure from within	•Teachers tend to endorse a 'maximal-operant' principle of motivation •Teachers may be naturally inclined towards a controlling style

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Table 3

How Motivation Theories Are Integrated Into the Montessori

Classroom, (From Murray, 2011)

Component of Motivation	Montessori Practice
Autonomy	•Student in control of work time •Teacher as guide •Individualized goal setting activities between student and teacher
Interest	•Linking new knowledge to larger universe •Uninterrupted work cycle
Competence	•Sequential and individualized nature of the curriculum •Three year age span •Evaluation process
Relatedness	•Three year age cycle •Frequent small group work •Class meetings