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# Intuition

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**Note from the Editor**

All of the authors and editors that have contributed to this volume of *Intuition* will have graduated and moved on within just a couple of years. But there is something from each of us that will remain. Those that have contributed to the journal before us are just as much a part of *Intuition* as we are right now, and I am honored to have been a part of that.

This issue is one of our most varied issues yet, and showcases the broad scope of the psychology discipline. The topics you will encounter here include development (Brighton; Pehrson; Richardson), industrial/organizational psychology (Manjarrez), emotions (Kitzmiller; Leonhardt), clinical psychology (Cooper; Jones; Pehrson; Tindall; Warren), technology (Jones; Pehrson), neuroscience (Tindall), family relationships (Brighton; Leonhardt) and even primate behavior (Shackett).

Thank you to the authors, editors, faculty reviewers, and our advisor, Dr. Harold Miller, for your invaluable contributions to this issue. I would also like to thank you, the reader, for the special role that you play in supporting BYU's undergraduate scholars and making this endeavor worthwhile.

— Wade Wade

## Effects of Media Use on Mental Health Among Adolescents and Emerging Adults



By Conner Jones

### Abstract

Media, such as the use of the internet and watching television, allows for quick communication between people, but overexposure to such media is correlated with social anxiety and clinical depression (Becker, Alzahabi, & Hopwood, 2013; Dalbudak et al., 2013; Dittmar, 1994; McNaughton-Cassill, 2001). Media usage is pervasive in our society, especially among adolescents and college students (Dittmar, 1994; Rideout, Foehr, & Roberts, 2010; Romer, Bagdasarov, & More, 2013). Symptoms of these mental illnesses are correlated with all forms of media, and can be influenced by the content of the media as well (Madan, Mrug, & Wright, 2013). Excess use of such media among adolescents and college students correlates with this rising surge of mental illnesses. This literature review discusses (a) the correlation between overexposure to media and depression and anxiety, (b) the content of such media and its effects on behavior, and (c) preventative treatments to such illnesses due to media. Attention to the negative side effects

of excess use of media, and the application of preventative measures and therapies may reduce the amount of cases of clinical depression and social anxiety among adolescents and college students.

*Keywords:* media use, depression, anxiety, college students, adolescents

With the increasing rise in technological advances, human beings have found numerous new forms of communication, which have allowed them to express themselves in novel ways. These forms of expression in communication have grown more popular, thereby increasing further use of such media. Researchers interested in exploring the effects of media usage on behavior have recognized a correlation between overexposure to media and clinical depression and social anxiety (Becker et al., 2013; Dalbudak et al., 2013; Dittmar, 1994; McNaughton-Cassill, 2001). Among these forms of media, the internet and television are major contributors to this link between these mental illnesses and media usage (Becker et al., 2013; Dalbudak et al., 2013). Dittmar (1994) even suggests that if depression or depressive tendencies already exist, these tendencies give way for a perpetual cycle of continued television use, which in turn may cause further depression. Media usage can have detrimental effects with those who are more exposed to it (Anderson et al., 2003; Romer et al., 2013).

Amongst many studies, researchers have concluded that media usage tends to be quite frequent in adolescent and college student age groups (Dittmar, 1994; Rideout et al., 2010; Romer et al., 2013). Between adolescents and college

students, it has been supported that college students view on average more media than adolescents (Primack, Swanier, Georgiopoulos, Land, & Fine, 2009). Out of all potential forms, the internet is the most prominent type of media that is overused by these age groups. Correlated with these findings are the rates of depression and anxiety within these age groups. This correlation becomes even stronger when multiple forms of media are introduced at once to the individual (Becker et al., 2013). Technology and media have become commonplace among the younger populations, and this hold may be having detrimental effects on the population's mental health.

Not only can it be argued that media usage itself affects mental well-being, researchers have also considered the content of such media and its effects on adolescents and college students (Madan et al., 2013; McNaughton-Cassill, 2001; Ortiz, Silverman, Jaccard, & La Greca, 2011; Worth, Chambers, Nassau, Rakhra, & Sargent, 2008). Madan et al. (2013) stated that a majority of television shows and movies involve some form of violence. Such violence may be the harbinger of anxiety due to the portrayal of a dangerous world. Violence, when viewed through media, is correlated with higher levels of physiological arousal within the individual, which can lead to higher anxiety levels (Madan

et al., 2013). Exposure to disaster stimuli in media is correlated with high state anxiety as well (Ortiz et al., 2011). Prolonged exposure to such stimuli could have adverse effects on health, as college students report higher anxiety in such situations.

The correlation between media use, such as television and internet, and clinical depression and social anxiety raises concerns, especially in regard to suicide. Suicide has become the ninth leading cause of death in the United States of America, killing just over 38,000 people a year (Hoyert & Xu, 2012). As clinical depression and social anxiety have a tendency to be comorbid with suicide, the question of how much media is viewed and the content thereof is now very pressing. Many people, especially adolescents and college students have become enthralled with these forms of media. With the elevated number of hours spent with these types of media, mental illnesses such as clinical depression and social anxiety have become more prevalent within these age groups (Dittmar, 1994; Park et al., 2013; Primack et al., 2009). In this literature review I will examine more closely (a) the correlation between media and clinical depression and social anxiety, (b) the violent and overall negative content of certain media and its effects on behavior, and (c) preventative solutions to mental illness

correlated with media. Many factors can have a hand in determining whether an individual has depression or anxiety, but if it can be limited by decreasing the influence of media then these studies would prove to be very useful in the near future.

### **Correlation Between Media and Depression and Anxiety**

As formerly stated, studies have shown a correlation between media usage within adolescents and college students, and the increased prevalence of depression and anxiety among these groups (Dalbudak et al., 2013; Dittmar, 1994). As the development of depression and anxiety is a long-term process, studies have suggested that the most reliable experimental method would specify the need for carefully controlled samples measured over long periods of time (Primack et al., 2009; Romer et al., 2013). Primack et al. (2009) carried out a longitudinal study to observe the correlations of media use with rates of depressive symptoms among adolescents grades 7 through 12. Upon a seven-year follow up of the 4,142 participants, it was discovered that 7.4 percent of those individuals met the criteria for symptoms of depression. This discovery was based on nine items taken from the *Centers for Epidemiologic Studies—Depression Scale (CES-D)*, which is measured through a three point



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Likert scale, and was found to be internally consistent with a Cronbach  $\alpha$  of 0.79 at the beginning of testing, and 0.81 at follow-up. These participants were carefully chosen and screened for any preexisting signs of depression to better isolate and record any development of depression within the individual. From this data alone, the adolescents who recorded more hours spent viewing media had significantly greater chances of developing depression. Had these participants not subjected themselves to an excess of media, the percentages of individuals met with depressive symptoms might have been lower.

This correlation between increased chances of depression with increased hours of media usage is troubling, given the reports of total hours of media viewed by both adolescents and college students. Adolescents in this particular study performed by Primack et al. (2009) were estimated to have been using around 8.5 hours of media per day. What might be even more concerning is that college undergraduates were found to have been using 70.6 hours on average of electronic media a week. The forms of media included in this study were diverse, allowing for educational sources to be measured, however most of the media devices were being used for recreation. This averages out to be about 10.1 hours per day for the average college undergraduate

(Becker et al., 2013). These higher rates of media usage among college students may be due to the separation of students from the home and some form of authority in the household. This separation from authority could lead to a reduced regulation of self-control and time management. Further, if 8.5 hours of media use per day by adolescents is correlated with a significant chance to develop symptoms of depression, the possibility for depression that can arise from an even greater use of media by college undergraduates must be taken into consideration.

#### Types of Media Used

A few studies have even discussed that the internet, television, and video games are the types of media that are of the greatest concern for developing such mental illnesses as depression and anxiety disorders (Becker et al., 2013; O'Hanessian, 2009). One study involving 795 Korean middle and high school students looked towards problematic internet usage as the possible catalyst for the development of clinical depression and social anxiety. The study defined problematic internet use as the "inability to control his/her use of the internet, which results in marked distress and/or functional impairment" (Park, Hong, Park, Ha, & Yoo, 2013). The study utilized the *Internet Addiction Proneness Scale for Youth--Short Form (KS-Scale)*, which is

comprised of a self-report of 20 questions founded on a 4-point Likert Scale. The KS-scale measures six sub-factors: disturbance of adaptive functioning, addictive automatic thought, withdrawal, virtual interpersonal relationship, deviant behavior, and tolerance. In conjunction with this scale, the researchers also used the *Beck Depression Inventory (BDI)*, *Reynolds Suicidal Ideation Questionnaire (SIQ)*, and *Child Bipolar Questionnaire*. All scales were found to have a positive correlation with each other with a p-value of less than 0.001. From these scales, the researchers found that 75 of the 795 students met criteria for problematic internet usage, of which there was a significant association with suicidal ideation and depression. The correlations between media and depression and other mental illnesses are not limited to the United States, but exist within other countries and cultures, as seen through the study performed in Korea (Park et al., 2013).

Other than internet usage, the total hours spent watching television may also be detrimental to mental health. Primack et al. (2009) reports that for every hour of television use by adolescents, the odds of developing depression for such adolescents rises significantly. It was measured that this trend began any time after 5 hours of television use, with 0-3 hours indicating a presence of

depression among more than 6 percent of the adolescents at follow-up. With the invention of services such as Netflix, television has become increasingly available to adolescents and young adults. According to Primack et al. (2009), this availability increases the likelihood of watching more television and putting oneself at risk for developing depression. They also hypothesized that this availability and use of television led the individual to be more exposed to advertisement and self-comparison with unattainable images, both being possible causes for a correlation with depressive symptoms.

Also to be considered, videogame playing is a form of media that has been positively associated with a rise in depression (Romer et al., 2013). In the study of Primack et al. (2009), 10 percent of participants developed depression when playing video games anywhere from 1-3 hours a day. Given the often violent nature of video games, they also pose the risk of predicting violent behavior among the adolescents and young adults that play them, thereby also possibly increasing anxiety among these groups (Anderson et al., 2003; Madan et al., 2014). Although video games induce addiction by intentionally placing the viewer in control of an alternate reality, it is important to note that even sources of media such as television and internet use, which may be

considered milder in nature, have also been correlated to addictive behavior (Sussman & Moran, 2013). All these forms of media have become more easily accessible, making it easier than before to widen the risk of the development of mental illness.

### **How Media is Used**

Along with what types of media are viewed and used by these age groups, the question of how adolescents and college students use them has been raised as well. In one study, Becker et al. (2013) surveyed 318 college students and asked the students how many hours of media they used and how they viewed the media. When asking how this media was used, they focused on the possibility of students using multiple forms of media at once, or in other words, how often they multitasked with media. Although studies have found that in the last decade overall media use has increased by 20 percent among American youth, media multi-tasking has been found to have increased by over 119 percent in the last decade (Rideout et al., 2010). Surprisingly, this study by Becker et al. (2013) further found that multi-tasking with media was associated with higher amounts of anxiety and depression symptoms among students. This also poses a big risk for our society, since it has almost become a cultural challenge of intelligence and

skill to see who can best juggle two or three forms of media at once.

### **Gender Differences in Media Usage**

As long as the possibilities of how media might include harmful side effects are being discussed, the question as to which gender it is affecting more should be addressed as well. According to Ohannessian (2009), in a study including 328 adolescents, boys were observed to have spent more time playing video games than girls. When focusing on internet usage, Dalbudak et al. (2013) found that male university students are at a higher risk for developing internet addiction. Past studies performed by Dittmar (1994) concluded that a preexisting condition of depression affected men and women differently in regards to media usage. On average, men watched more television than women, and depressed men watched even more television than was normal for non-depressed men. The hours viewed by depressed women actually exceeded hours viewed by depressed men. The question then arises if these gender differences in viewing media are causing one gender to be more susceptible to mental illness than the other gender. Preexisting conditions, such as depression, as well as the content of the media used factor into the further behavior and susceptibility of the individual.

### **Media Content and its Effects on Behavior**

Although media in general has been shown to have a correlation with signs of clinical depression and social anxiety disorders, the content of such media has also been found to have specific implications as well. Surprisingly enough, a certain study shed forth light on the idea that daily news reports can bring a certain amount of stress to the individual. University students with lower levels of optimism were found to have increased anxiety levels after viewing negative news reports (McNaughton-Cassill, 2001). If this happens with the news, it is possible that other content in media might also have adverse effects on the lives of adolescents and college students.

### **Disaster and Tragedy**

More obvious forms of disaster and tragedy may instill anxiety and anxiety disorders within viewers. Participants in a certain study were asked to recall news stories from the attacks of September 11 and to remember how they felt at the time that the attacks occurred. When participants were measured for sign of distress, researchers determined that measured responses were significant predictors of PTSD symptoms (Collimore, McCabe, Carleton, & Asmundson, 2008). In another form of showing disaster, Ortiz et al. (2011) organized a study with children,

measuring anxiety levels after the viewing of disaster media cues. After viewing the video clip of a disaster, participants had statistically significant higher anxiety levels than those that were shown a neutral weather clip. As can be seen from these studies, disasters portrayed in the media can influence youths who consume such media. Unfortunately, disaster and tragedy are commonplace in media. Even more common than disaster is the direct showing of violence.

Violence is a basic instinct that comes with ensuring one's own survival. When a person is threatened with death or harm, he or she may turn to violence to protect him or herself. The purposeful invoking of these instinctual drives through vicarious violence exhibited from media may increase the anxiety that can be found inside the body and mind of the individual (Anderson et al., 2003; Collimore et al., 2008; Madan et al., 2013; McNaughton-Cassill, 2001; Ortiz et al., 2011). So how common is violence in the media? One study shows approximately 61 percent of television programs and 91 percent of films involve some sort of violence (Anderson et al., 2003; Worth et al., 2008). Not included among these percentages is the amount of violence that is portrayed in video games and other rising forms of media. Some might say that this could leave any viewer of media affected by the influence of violence within media.

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When confronted with such violence, the viewer can even react on a physiological level.

Physiological reactions that occur when an individual is confronted with violence or disaster media include a higher blood pressure and an elevated heart rate (Madan et al., 2013). These physiological symptoms are already some of the base symptomatology of anxiety. One such study looked to replicate these physiological reactions and to measure anxiety levels of college students when they viewed violent movie clips. Madan et al. (2013) used several clips from different films and showed them to 104 college students, while the other 105 watched non-violent clips. The researchers reported that those who viewed the violent clips had an increase in anxiety. Interestingly enough, those who had already experienced violence in real life had lower heart rate levels and blood pressure. This indicates that through prior exposure to violence, desensitization occurred within individuals, enabling them to not be as deeply affected by the violent movie clips.

### **Reversed Relationships**

A possible argument is that these correlational relationships can be reversed in that the result could have been a catalyst for the observed behavior. For example, Dittmar (1994) suggests that college students may watch

more television because they are already depressed. He argues that depression leads to an individual separating him or herself from society, and uses television as a substitute for the absent social interaction. Having removed oneself from society, it may be possible that individuals watch television to live vicariously through the characters in the television programs. As the individual uses television as a coping mechanism for possible preexisting depression or anxiety, he or she may add even more to his or her problem, creating a sort of cyclical pattern in the development of a serious mental illness. Romer et al. (2013) suggests the possibility that media use is a reflection of depression, rather than a direct cause. Since the behavior of viewing media and depression and anxiety are so interrelated, this correlational relationship may be possible to treat in various ways.

### **Preventative Treatments to Media Related Mental Illness**

Due to the many negative messages that can exist within the media, overexposure may lead some to believe that behaviors in media are accepted and normal (Anderson et al., 2003). Such acceptance could possibly lead to unacceptable behaviors and even a higher crime rate. Preventative measures should be taken to hinder such possible problems from arising in the future. Usage of media

may not always manifest itself in a negative light. In many ways, media has been suggested to be an invaluable resource to spread information and to educate the masses (Romer et al., 2013). From the research previously indicated, it can be seen that exposure to media may create issues within the individual; however, certain forms and messages in media may prove useful to the individual, given a limitation on time of exposure. Preventative measures may be useful in limiting the negative influences media can have on us, while allowing the positive influences to promote good behavior and mental health. When preventative measures fail, it may prove effective to use practical therapies.

### Practical Therapies

It has been suggested that the humor portrayed in media may help remediate depression and anxiety (Primack et al., 2009). Laughter is a good form of therapy, as it has been known to reduce stress and symptoms of depression (Ko & Youn, 2011). If humor truly would help remedy depression, then it may be possible that certain uplifting content within media is beneficial. In other cases, it may be necessary to prescribe medication to treat the depression and anxiety before any other action is taken. This would put a halt on the "cyclical" nature mentioned by Dittmar (1994) between the use of media and depression, as primary

depression would not be as much of a catalyst for further media binging and depression onset.

Since media use has become a substitute for interacting within the social groups surrounding individuals (Dittmar, 1994), it might be productive to promote group therapy. Group therapy would provide individuals, who most likely prefer the same types of media, with a chance to branch out and create social connections. These individuals may also be able to help each other with addictions to media, as they know of the struggle personally. Additionally, adolescents and college students with these issues may be able to teach one another self-control methods, thereby increasing their odds of success. Interestingly enough, in a study performed by Hedman et al. (2013), individual cognitive therapy has proven more effective than group therapy in treating those with social anxiety disorders. In either case, therapy could be a possible solution in providing those with media-induced social disorders with opportunities to be more productive socially. The combination of medication and therapy may be the best overall option for treatment.

Due to the society we live in, the inevitability of coming into contact with some form of media may denote that these previous measures could mitigate negative effects

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to mental health. A limitation on exposure to media and certain contents portrayed in media may prove useful to combat the comorbidity of media use with clinical depression and social anxiety disorder. Since some forms of media could prove useful, the mental health of individuals could benefit from some content in media use, although limited exposure is still advised.

### Conclusion

Media is something that surrounds us and pervades our life every day. Media has also become one of our greatest tools to express ourselves and to communicate ideas, but it may also help bring about mental degradation. Overexposure to media has been correlated with the development of clinical depression and social anxiety within adolescents and college students. Although preventative measures to control such exposure to media do exist, creating an addiction by viewing such media is very easily accomplished. Those who approach it carefully and with a good support system may be able to harness its true potential. While research exists about the correlation of media use with depression and anxiety, further study is always recommended, as there appear to be positive outcomes from the use of media. Further research might be able to indicate specifically what benefits we can receive from media, and how it might be better used in

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society. If media were better understood, the risk of adolescents and college students developing mental disorders might be significantly reduced. It may also be possible that other undiscovered factors surrounding media use have strong correlations with the development of clinical depression and social anxiety. Until then, controlled doses of media usage are advised.

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## Self-worth in the Development and Treatment of Eating



By Eliza L. Warren

### Abstract

Eating Disorders (EDs) involve a consuming drive for thinness. They cause significant physical and psychosocial impairment. A core commonality between EDs is the overvaluation of body weight and shape as a measure of self-worth. The purpose of this paper is to review the importance of self-worth perception in the development and treatment of EDs in women and girls. Women and girls with EDs tend to believe their worth comes from body weight and shape, as opposed to intrinsic sources. Self-worth can interact with other factors such as relationships, body dissatisfaction, and perfectionism in ED development. A major goal of treatment is to replace false beliefs about the source of self-worth with more truthful, positive beliefs. To do this, counselors should work with the patient's social support system and address the patient's negative thinking and perfectionism. Prevention efforts would ideally start at an

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early age by instilling in young girls an understanding of their inherent worth.

*Keywords:* self-worth, self-esteem, eating disorder, women, girls

Warren

Eating disorders (EDs) have the highest mortality rate of any other psychological disorder (Barlow & Durand, 2012), and ED incidence rates appear to be increasing (Hudson, Hiripi, Pope, & Kessler, 2007; Sadock & Sadock, 2015). This illness involves abnormal eating-related behaviors and cognitions that cause significant physical and psychosocial impairments (American Psychiatric Association, 2013). Some common problems people with EDs experience include extremes in body weight, electrolyte imbalances, amenorrhea, depression, social phobia, and substance abuse (American Psychiatric Association, 2013; Sadock & Sadock, 2015). Because 60-90% of cases occur in women (Jones & Morgan, 2010), in this paper I will focus on EDs in women and girls. The three main EDs are anorexia nervosa, bulimia nervosa, and binge eating disorder (Fairburn & Cooper, 2014). Anorexia nervosa (AN) has the highest mortality rate, and is characterized by severe food restriction leading to a significantly low body weight. Bulimia nervosa (BN) is characterized by repeated episodes of bingeing and compensatory behaviors (e.g. vomiting, excessive exercise). Binge eating disorder (BED) is characterized by recurrent binges in the absence of compensatory behaviors (American Psychiatric Association, 2013). Although AN, BN, and BED manifest different

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behaviors, they share a distinct core factor: the belief that self-worth depends on body weight and shape (Fairburn & Cooper, 2014; Hrabosky, Masheb, White, & Grilo, 2007; McFarlane, McCabe, Olmsted, & Polivy, 2001; Wilson, 1996). This distorted view of self-worth plays a central role in ED pathology, and therefore must be examined more closely by those involved in ED treatment (Fairburn & Cooper, 2014). The purpose of this paper is to highlight the importance of self-worth perception in the development and treatment of EDs.

### **Self-worth: A Misunderstanding**

Self-worth is a measure of inherent value based on one's humanity; it is invariable, and does not depend on external factors such as perceived achievements or shortcomings (Granek, 2007). Because it is innate and not dependent upon behaviors or external conditions, it follows that all human beings have equal, immutable worth. However, women and girls with EDs perceive their worth as being dependent on external factors, especially body weight and shape (Hrabosky et al., 2007; Kirsh, McVey, Tweed, & Katzman, 2007; McFarlane et al., 2001; Wilson, 1996). As a result, they see their self-worth as being on a spectrum, fluctuating as they gain or lose weight (McFarlane et al., 2001). In a study comparing women diagnosed with EDs to

both restrained and unrestrained eaters who do not suffer from EDs, McFarlane et al. (2001) found that the ED group based more of their self-evaluation on weight and shape. The value that the ED group put on weight and shape was also significantly more pervasive; it affected not only their beliefs about appearance and social domains (as it did with the restrictive eaters), but also other areas of their lives such as work and school. Another study found that compared to controls, adolescent girls with EDs placed more emphasis on physical appearance as a “barometer of self-worth” (Kirsh et al., 2007). This distorted view of self-worth based on weight and shape is a hallmark of ED pathology (Fairburn & Cooper, 2014; McFarlane et al., 2001).

### **Self-worth in ED Development**

Perception of self-worth plays a central role in ED development, and is influenced by factors such as relationships (Granek, 2007; Hill & Pallin, 1998; Reindl, 2001), body dissatisfaction (Gordon & Dombeck, 2010; Kirsh et al., 2007; McVey, Pepler, Davis, Flett, & Abdoell, 2002; Phares, Steinberg, & Thompson, 2002), and perfectionism (Culbert, Racine, & Klump, 2015; DiBartolo, Frost, Chang, LaSota, & Grills, 2004; McGee, Hewitt, Sherry, Parkin, & Flett, 2005). Hill and Pallin (1998) found that frequent mother dieting, lower perceived self-worth, and

higher body mass index (BMI, a health indicator based on height and weight) significantly predicted dieting awareness in 8-year-old girls. The researchers reported that girls tend to see weight-control as a way to increase self-worth, and mothers are influential in that regard (Hill & Pallin 1998). Anecdotal evidence also illustrates the impact that relationships can have on self-worth in the context of ED development. In a qualitative study by Granek (2007), one subject described how her father withheld affection from her mother whenever she gained weight. Another subject’s parents encouraged her extreme dieting. Influenced by their family environments, these women learned at an early age to equate thinness with worthiness of their parents’ love. These and other findings illustrate the impact that relationships can have on self-worth and ED development (Reindl, 2001).

Body dissatisfaction interacts with perceived self-worth in ED development (Gordon & Dombeck, 2010; Kirsh et al., 2007; McVey et al., 2002; Phares et al., 2002). Self-worth contingent on physical appearance has been found to moderate the association between body dissatisfaction and disordered eating (Kirsh et al., 2007; McVey et al., 2002). Additionally, Phares, Steinberg, & Thompson (2004) found that body dissatisfaction, drive for thinness, and bulimic tendencies were directly related to low global self-worth in

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young girls. Other studies have found a comparable relationship in older age groups (Gordon & Dombek, 2010). Taken together, these results highlight the important role that perceived self-worth plays in the link between body dissatisfaction and ED development.

The interaction between perfectionism and self-worth perception may also influence ED development. Perfectionism is a risk factor for ED development (Culbert et al., 2015; Kirsh et al., 2007; McGee et al., 2005), and necessarily involves maladaptive contingent self-worth (DiBartolo et al., 2004). By definition, perfectionists “regard anything short of perfection as unacceptable” (Perfectionism, *Merriam Webster Online*). If a person with perfectionistic tendencies believes her body is imperfect, and further bases her self-worth on body weight and shape, she would view not only her body, but also *herself* as unacceptable. Indeed, Smith (2002) said that women with EDs “believe that others deserve happiness, love, and joy, but that they themselves deserve sorrow, disappointment, and punishment” (p. 3). This belief is consistent with the self-targeting nature of perfectionism, in which a woman may hold herself to a higher standard than she does others.

How does one develop this view of self-worth as being contingent upon body weight and shape, as opposed to

being innate and unchangeable? Though research on this question is limited, a few proposals have been made. One popular theory proposes that body weight and shape serves as an “easy” and simple source of worth for people with EDs (McFarlane et al., 2001). Though it may appear more controllable and measurable to these women, in reality, body shape and weight are relatively inflexible compared to other human characteristics such as knowledge, skills, or happiness (Wilson, 1996). The illusion of forcing one’s body to be “perfect” could be partially attributed to Western society’s emphasis on the simplistic “calories in” vs. “calories out” equation for weight control (Division of Nutrition, 2011), though further research is required on this topic. Additionally, body weight and shape are external measures; they can be *seen* via mirrors, scales, clothing sizes, etc., and visual reinforcements allow for easy evaluation. Self-worth is intrinsic and unchanging, and therefore cannot be measured (Granek, 2007; Smith 2002). Western culture, with its emphasis on image and outward displays of accomplishment (e.g. degrees, career achievement, physical appearance, monetary wealth, etc.), does not seem to support a sense of intrinsic self-worth. Though there may be many reasons for its cause, it clearly plays a central role in ED development.

### Self-worth in ED Treatment

Considering the important role self-worth perception plays in ED development, treatment and prevention must address these beliefs. Cognitive Behavioral Therapy is the most popular treatment for EDs, and aims “to expand the patient’s definition and sense of self-worth” (Wilson, 1996). Center for Change, a leading ED treatment center, asserts that an essential part of ED intervention is to teach the patient that she is unconditionally worthy of acceptance and love (Smith, 2002). To help clients understand their worth, clinicians address negative thinking patterns, perfectionistic tendencies, and social relationships (Fairburn & Cooper, 2014; Verplanken & Tangelder, 2011).

Frequency and automaticity of negative thoughts are strong risk factors for body dissatisfaction, perception of low self-worth, and ED propensity (Verplanken & Tangelder, 2011). Perfectionistic beliefs often persist after recovery (Granek, 2007; McGee et al., 2005), but as long as these remain, the patient is vulnerable to relapse (Kirsh et al., 2007). She must be able to accept that her authentic self is worthy of love and joy and that her worthiness does not change according to appearance or achievement (Smith, 2002). Finally, relationships based on love and acceptance can help one gain an appreciation for her unconditional

worth. Granek (2007) found the positive role of loved ones to be a major theme in recovery. One subject in her study described what she learned from her relationship with her boyfriend: “I realized what I looked like doesn’t matter, it’s not the first thing on everyone’s agenda. ... He liked me for *me* and not for the way I looked” (p. 375). Positive relationships played a more significant role in recovery for these women than did behavioral corrections (Granek, 2007), likely because social connections have a deeper, more intrinsic, and longer-lasting effect than behavioral interventions. Considering the strong link between relationships and perception of worth, involving loved ones in ED treatment could be pivotal to the patient’s recovery (Hill & Pallin, 1998; Phares et al., 2004; McGee et al., 2005).

In addressing negative thoughts, perfectionism, and social relationships, it is important to replace old maladaptive beliefs and behaviors with new positive ones (Fairburn & Cooper, 2014). As women with EDs reduce their focus on weight and shape concerns, they should concentrate their energy on more constructive things (e.g. service, learning, meaningful goals, living a balanced life) that not only replace the bad, but also bring more of the good into their lives (e.g. joy, fulfillment, peace). Moving on to more important things is essential for recovery because it

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creates hope, a critical factor in overcoming an ED (Granek, 2007; Smith, 2002).

In order to fully recover, it is necessary for the patient to redefine her ideas about the source of her self-worth (Fairburn & Cooper, 2014; Wilson, 1996). Counselors and therapists address negative thinking, perfectionism, and work with the patient's social support system to help the patient establish a stable sense of worth. Erasing and replacing destructive beliefs with healthier ones enables positive direction, hope, and an ability to appreciate one's innate worth.

### Prevention

Girls as young as 8 years old can be at risk for EDs (Hill & Pallin 1998), so it is vital to help them establish a stable understanding of self-worth while they are young (Kirsh et al., 2007; McFarlane et al., 2001). The most effective way to do this may be through the child's family. Parents can set examples of healthy attitudes toward food and body, and an authentic positivity about themselves and others. By their examples, teaching, and unconditional parental love, they can nurture their child's understanding of her inherent value, greatly reducing the risk of ED development (Hill & Pallin, 1998; Kirsh et al., 2007;

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McFarlane et al., 2001; McGee et al., 2005; Phares et al., 2004).

### Conclusion

One's understanding of the source of self-worth plays a central role in ED development and recovery. Women and girls with EDs base their self-worth on body weight and shape. This perceived source of worth is strongly influenced by relationships, especially familial ones. Source of self-worth plays a major role in the relationships between body dissatisfaction, perfectionism, and ED propensity. Though we do not fully understand why women with EDs base their worth on their weight and shape, some suggest it may involve an illusion of control and simplicity. ED treatment must enable the patient to replace false beliefs about the source of her worth. Counselors' treatment plans should address negative thinking, perfectionism, and the patient's social support system, and replace maladaptive priorities with positive, truthful ones. Prevention efforts should start early by instilling in young girls an understanding of the true innate source of their worth.

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## IQ: Greatly Influenced by Early Family Life



By Kevin Brighton

### Abstract

For many years, psychologists and researchers have been interested in the nature and nurture debate with regards to IQ. Some have claimed that IQ is something that can be passed on through genetics and is an inherited trait. Others have declared that IQ level is not something passed on through genetics, but rather something determined by experiences one has in his or her life. This review was created to discuss how a child's IQ may be affected by early family life, a factor that requires more attention in the literature. This report will discuss how early child-parent experiences, intimate relationships between child and parent, and child-parent attachment each affect a person's level of IQ. By understanding the underlying factors of IQ, parents may be able to help their children develop cognitively at a young age and thus have a higher IQ.

**Keywords:** intelligence, IQ, family, parent and child relationship

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One subject of interest that philosophers and psychologists have considered for many years is that of intelligence (Leahy, 1961). In particular, many psychologists have considered how to accurately measure intelligence. In efforts to answer this question, early psychologists created intelligence tests and developed the idea of an intelligence quotient (IQ). These tests attempt to measure various aspects of an individual's intelligence and assign quantitative scores that describe the individual's performance. One's IQ can simply be defined as a person's mental age (determined by completing an intelligence test) divided by his or her chronological age, multiplied by 100 (Santrock, 2014). With the creation of intelligence tests and the concept of IQ, many researchers have wondered what factors influence a person's IQ (Leahy, 1961). Throughout the years, these psychologists and researchers have presented theories and conducted experiments to help determine what factors influence the level of IQ a person has. By understanding what affects IQ, people may better understand what steps they may take to affect their own IQ and the IQ of others.

One theory that has been suggested is that nurture is one of the determining factors of IQ (Lindahl, Malik, Kaczynski, & Simons, 2004). This theory takes the stance

that IQ is something that can be affected by experiences one has in his or her life. Individuals supporting this claim believe that a person is not simply born a certain way with a certain amount of intelligence. Rather, people can choose whom they wish to become and can increase or decrease their intelligence level depending on practice and determination.

Though research has shown that intelligence may be influenced by nurture-related experiences (Plomin & Spinath, 2004), the idea that IQ correlations can be inherited through genetics has also been of interest for many years (Galton, 1889). For example, one group of researchers emphasized that nature may have a huge effect on a person's IQ level (Johnson et al., 2007). Nature theorists believe that intelligence is something that is inherited and passed on from parents to offspring through genetics. In fact, nearly one hundred years ago, one researcher found a correlation between parents' IQ scores and that of their children's and believed that it was genetics that affected the children's IQ scores (Terman, 1916). To illustrate the nature view of how IQ is determined, one may argue that if a person has a very intelligent mother and father, he or she is bound to be intelligent as well. The argument is that intelligence is tied directly to biology and is not influenced by nurture.

Quite recently however, many concerned with the nature and nurture debate of IQ have focused their studies on how nature and nurture combined can influence intelligence (Caspi et al., 2007). Studies of monozygotic twins, for example, have taught researchers a lot about how much of an effect nurture and nature have on IQ (Johnson et al., 2007; Segal & Hur, 2008). However, one factor that could be further examined as having an effect on an individual's IQ is that of early family life. Though many today believe that IQ may be predetermined by nature and nurture, many may overlook ways in which one's early influence from, intimate relationships with, and attachment to parents affect IQ.

#### **Early Parental Characteristics and their Effects on the IQ of a Child**

A person's level of IQ may be very much influenced depending upon the parental environment in which a child was raised. Each parent is unique and has different personalities and experiences. The characteristics of *who* a parent is and the way he or she decides to raise his or her children may play a role in a child's intellectual development. The amount of education a parent has had, the home environment a parent establishes, and the parent's culture may all have an effect on a child's IQ.

#### **Parents' Level of Education**

Though some may argue that a child's early home environment does not significantly influence IQ (Leahy, 1961), many recent studies have concluded otherwise (Rowe, Jacobson, & Van den Oord, 1999; Sellers et al., 2002). Interactions between parents may greatly affect the environment a child is raised in and have an effect on later IQ (Lindahl et al., 2004). The way in which parents act and behave towards one another may influence how their child develops cognitively. One aspect of a parent's actions that a child may view and be directly affected by is the education of the parents.

One study in particular has found that the education level of a parent may have an environmental effect on the IQ of a child (Rowe et al., 1999). A parent may encourage children to strengthen their intellectual abilities based upon the parent's own level of intelligence. A parent's push during a child's early years to increase his or her cognitive abilities may greatly influence how hard a child will try to increase in intelligence and thus have a higher IQ. For example, one study found that there was a correlation between parents who had more or less than 12 years of education and their children's IQ (Sellers et al., 2002). Children who had higher IQ usually had parents with more

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than 12 years of education. Researchers concluded that this was due to the parents' enthusiasm and motivation towards their children's cognitive development (Sellers et al., 2002). Through the parents' example, a child may develop for themselves an opinion of how much they need to increase their intelligence.

Further, parents with more education may help promote an enriched home environment that may persuade their children to develop intellectually (Sellers et al., 2002). Parents with more years of education may be a model of what the children have the potential of achieving and becoming. These parents may also have realized through their education some of the benefits of having a good and enriching home environment for their children (Sellers et al., 2002). Parents with more education may provide their homes with a more positive environment, encouraging children to develop cognitively and thus increase their IQ.

#### **Effects of Parents' Culture on IQ of Child**

Other factors such as the parents' culture, occupation, and the way in which they structure their lives may also affect the IQ of a child (Deater-Deckard, 2009). Some researchers (Segal & Hur, 2008) investigated ways that early childhood parenting and culture may have an influence on a person's IQ. In this study, two Korean

monozygotic twins were raised in two completely different cultures. One of the twins was raised in the United States by foster parents while the other twin was raised in South Korea by her biological parents. Researchers conducting the experiment suggested from their results that IQ may be greatly affected by biology, but specific mental skills may be affected more by interactions with the environment. For example, when the twins' General IQ test scores were compared, they were quite similar. In contrast however, the twin living in the U.S. had a much higher Verbal IQ score than the twin living in South Korea. Researchers suggested that this may be due to the fact that there is a great emphasis on language skills in schools throughout the United States. Researchers also argued that the U.S. twin's adopted mother was a speech pathologist who may have greatly influenced her daughter in communication skills. On the other hand, the twin raised in South Korea had a higher Performance IQ score as compared to her sister in the United States. This may have been because of the stress placed on mathematical development in South Korea (Segal & Hur, 2008). Though the study is not fully clear on the reasons why the Verbal and Performance IQ scores were different, there is evidence that these twins' early experiences with their parents may have had an influence on their various performance levels. It

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therefore appears that the culture of the parents may be more important than the genes the child is born with when observing IQ scores.

### **Parental Creation of Home Environment**

Though a parent that is well educated may have a positive effect on his or her child's IQ, research also shows that some actions of a parent may have negative effects on a child's level of intelligence. It has been found that children raised in unfavorable home environments may have problems developing cognitively and may perform more poorly on IQ tests. Many developmental problems acquired in life may stem from early parenthood and early childhood experience (Laucht, Esser, & Schmidt, 1997). Pavarini, de Hollanda Souza, and Hawk (2013) observed that by creating a favorable home environment, a child may further develop his or her IQ. Higher IQ levels in children may be attributed to the quality of home environment where they were raised.

Researchers have also found that what happens in the home during the early period of a child's life may contribute to the IQ and cognitive performance of a child (Elardo, Bradley, & Caldwell, 1975). For instance, Deater-Deckard (2009) found that chaos such as loud noises or inconsistent family routines in a home may have a negative effect on a child's IQ. From his study, Deater-Deckard concluded that

having a home that is free of chaos may help one to healthfully develop cognitively (2009). The experiences a child has due to the home life his or her parents created may increase or decrease that child's IQ significantly and should thus be further explored in future research.

### **Parent and Child Relationships and Effects on IQ**

As discussed, parents' characteristics and actions may have an effect on a child's IQ. Not only can parents' parenting techniques and the environment in which they raise their children have an effect on their children's IQ, but also the relationships the parents have with their children. In other words, how a child feels he or she can relate to and feel comfortable with his or her parents may influence the child's IQ. To address parent and child relationships, the following sections will discuss how IQ is affected by three factors: early parent-child relations, a child's perception toward his or her parents, and daily acts parents may perform that may affect relationships with their children.

### **Parent and Child Relationships are Vital at Early Ages**

In one review (Pavarini, et al., 2013), researchers concluded that a parent's relationship with his or her child may play a very important role in the development of a child's intelligence. These reviewers also observed that there are certain things parents can do to help influence a

child's understanding of mind (2013). Schacht et al. agreed by arguing that early, compassionate parenting and love between parent and child may increase a child's level of intelligence (2009). A child may have a higher IQ because a parent displays care, encouragement, and loving communication with the child.

In addition, other researchers have found that when children are younger, their intelligence may be influenced more by family nurture than by nature (Brant et al., 2013). It was found that those who had a higher IQ were more influenced by the environment as children. However, those with a lower IQ did not have some of that beneficial environmental influence as children, but rather had shown heritability of intelligence during their years of adolescence (Brant et al., 2013). Thus, much of the early relationship with parents may influence a child's IQ in a positive way. It has also been found that assortative mating may not significantly influence IQ. In other words, a man with a high IQ mating with a smart woman will not necessarily produce intelligent offspring. The study concluded that "higher IQ is associated with a prolonged sensitive period" (Brant et al., 2013). Other research also supports the claim that intelligence is influenced by early parent-child relationships (Laucht, et al., 1997). Therefore, it appears that IQ is greatly

affected by experiences which a child has before his or her adolescent years. Many of these experiences affecting IQ have been found to be directly correlated with the relationship a child has with his or her parents. The parents, being the first teachers and mentors of a child, may therefore greatly influence their child's cognitive and intellectual abilities.

### **Child's Perception of Dependence in Relation to Parents**

Some researchers (Brown & Iyengar, 2008) concluded that much of a student's academic achievement may be affected by experiences that the child has with his or her parents at home. It was also found that there is a correlation between an adolescent's perception of independence and intellectual achievement (Brown & Iyengar, 2008). Another study found that preschool and elementary aged children that are more dependent upon parents may have a lower IQ score than those that feel independent (Dreger, 1968). How well a child feels he or she fits in with parents at home and how dependent the child is may have an effect on how he or she will perform intellectually in a school setting and on an intelligence test.

### **Daily Parental Acts Affecting Relationship with Child Mother and Child Interaction.**



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There are also many daily acts parents can perform that may affect their relationship with their children and their children's IQ level. For example, one study (Caspi et al., 2007) found that there is a high correlation between people with high IQ scores and ones that were fed breast milk as children. Caspi et al. (2007) suggested that the increased IQ level is affected by the fatty acids found within breast milk. If a mother breastfeeds her child, that child may be able to attain those fatty acids found primarily in breast milk and thus have an increased level of IQ (Caspi et al., 2007). Not only may breastfeeding have an effect on a child, but it was also found that the actions and moods of a mother may have a significant impact on not only a child's physical development, but also on a child's IQ level (Lipton, 1998). Both studies demonstrate how actions of the mother and her relation to the child may influence the IQ level of the child.

**Verbal interaction.** Other researchers have found that a parent's verbal interactions can have profound impacts on a child's verbal IQ. If a parent is more educated, for example, he or she may use more complex verbal communication (Sellers et al., 2002). How a parent communicates and uses language with his or her child may influence the development of the child's own level of Verbal

IQ. Other research has found that parents who communicate with their child concerning education and the child's homework may positively help motivate the child and the child's IQ may increase (Murray et al., 2006). Parents who daily encourage and communicate with their children by using complex verbal communication may actually help their children to have a higher level of intelligence.

Though much research shows how early parent-child relationships may influence a person's IQ, there are still some gaps in the current research that have not yet been tested in full. For example, researchers could consider in what ways interactions with specifically the father versus the mother may have a significant effect on a child's IQ (Pavarini et al., 2013). Also, there is still little or no research on how early family relations may specifically affect a girl versus a boy.

#### **Secure Attachment to Parents may Increase IQ Scores**

Along with quality parent-child relationships, healthy attachments may have a positive effect on one's IQ level. On the other hand, unhealthy or negative parent-child attachments may have a negative effect on the intelligence level of a person. The following will be an examination of the various attachment styles and how each of those attachments may affect one's IQ score.

### Attachment Styles

Ainsworth (1985) conducted an experiment on how the bond or attachment between a parent and child affects a child's behavior. For the most part, Ainsworth found that infants who were more secure in the presence of the parent and others were infants whose mothers were loving, kind, aware of the infants' wants and needs, and receptive to the children's behavior and efforts (Ainsworth, 1985; Ainsworth et al., 1978). In a later study, researchers studied how attachment affects IQ scores. It was found that children that were considered to be secure scored higher in IQ than children that were insecure (Jacobsen, & Hofmann, 1997). In summary, if there is a strong and loving bond between the parent and child, the child is more likely to have a higher IQ.

### Effects of Negative and Positive Attachment on IQ

One study focused on how a father's behavior and attachment to his child may affect the child's well-being (Schacht et al., 2009). Researchers of this study found that when fathers are cold towards children and perform negative or affection-lacking parenting, it can have a negative effect on a child's cognitive adjustment (Schacht et al., 2009). Negative parenting and a lack of a loving attachment between parent and child may place a wedge in the child's learning development. However, if a parent shares a secure

attachment relationship with his or her child, that child may have fewer emotional struggles and be able to more fully develop his or her cognitive abilities. Another study found that a healthy attachment may lead to higher IQ and academic performance (West, Mathews, & Kerns, 2013). In this study it was found that secure attachment displayed towards children between the ages of 24 and 36 months correlated with a higher IQ in the child's later years. In opposition, children who were categorized as having an ambivalent or disorganized attachment tended to have lower IQ scores than securely attached children. This study also determined that the physical help parents offered to their children rather than verbal encouragement brought about a secure relationship and higher IQ (West et al., 2013). Healthy attachments between a parent and child may indeed affect a child's IQ score in a positive matter.

### Authoritative Parenting

When a mother demands more from her children cognitively, the children's cognitive abilities are found to be higher as opposed to when a mother is less demanding (Jang, 1997). However, authoritative parenting might not be the best parenting technique for all cultures. For example, some research shows that authoritative parenting may have more positive effects on European American children than on

Asian American children (Chao, 2001). School performance was also found to be positively affected by authoritative parenting as well as relationship attachment between parent and child for European American children. Second generation but not first generation Chinese American children were also affected positively by authoritative parenting (Chao, 2001). Therefore, a parent's attachment and relationship with his or her child may have a positive effect on the child's level of intelligence.

#### Discussion

Many factors affect a person's IQ. Although nature and biological forces affect IQ, one question that needs further attention is how IQ is directly affected by early family experiences that an individual has in his or her life. To better understand this topic, future research could focus more on longitudinal studies in order to more deeply investigate the development of IQ that may take place throughout a child's lifetime. Particularly, natural setting studies in the home may add to current research findings. Further, observing relations amongst the IQ of siblings may also show patterns or correlations and aid in the understanding of the factors of IQ. Also, further research could examine how a father or mother uniquely influence his or her child's IQ (Pavarini et al., 2013).

In summary, there is a lot of evidence that currently shows that certain early family experiences can have a positive influence on one's level of IQ. As discussed, a child's early experiences, especially with his or her parents, may greatly influence a child's efforts to increase his or her intelligence. Through daily acts and practices, parents are able to help their children develop intellectually and thus increase in their levels of IQ. By understanding how much early home life can influence the intelligence of a person, one may better conclude what he or she may do in helping others increase in intelligence. Parental characteristics, parent and child relationships, and attachment styles are all contributing factors to a person's level of IQ and should be studied more in full order to increase our understanding of factors affecting IQ.

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## Perfectionism and Depression in the Development of Anorexia in Girls



By Emily Cooper

### Abstract

Many factors can play a role in the development of anorexia, including genes, social issues, extreme dieting, stressful life events, personality traits, and cultural influences. However, many studies have found perfectionism and depression to be strongly correlated with the development of eating disorders. In this literature review I critique published findings and consider the limitations of published research on anorexia. I examine certain factors that play a role in the development of anorexia, as well as the relative strength of each factor, with particular attention to the characteristics of perfectionism and depression and how they interact with each other in influencing anorexia in adolescent girls. Understanding the factors in the development of anorexia may decrease risk among adolescent girls and create better treatment options and preventive methods.

*Keywords:* anorexia, depression, perfectionism

In recent decade, females have struggled to achieve what they think is the “perfect body.” From corsets and fainting couches to crash diets and “skinny wraps,” it is evident that the lengths women will go to for the perfect body have few boundaries. Currently, one particularly troubling subgroup is adolescent girls with anorexia.

Research on anorexia can be challenging for many reasons. First, only 1% of adolescent girls are diagnosed with full-syndrome anorexia (ANRED, n.d.), but this does not take into account the adolescent girls who suffer from partial-syndrome anorexia. Secondly, the majority of research is conducted using questionnaires that are completed by the patient (Abascal et al., 2006; Dohm et al., 2008; Forbush, Heatherton, & Keel, 2007). Self-reports can be helpful in determining correlation, but not in determining causation.

Putting these challenges aside, the question remains: What causes some girls to develop anorexia and not others? Research has shown that girls who develop eating disorders tend to be both depressed and perfectionist (Bardone-Cone et al., 2007; Dohm et al., 2008). In one study, researchers found that perfectionism was associated with the increased awareness of how respondents’ bodies compared to those of their peers and with feelings of shame, submissiveness, and

defeat (Bardon-Cone et al., 2007). This study also found that girls with perfectionism go to greater lengths to cover up mistakes they have made, and try harder to conceal any flaws they might have.

When depression is mixed with perfectionism, girls who are already struggling may have a harder time functioning in a healthy, normal way. Moreover, the development of anorexia in girls may cause physiological changes resembling those observed in starved individuals during World War II (Andrews, Barklage, & Swift, 1986; Jaret & Nazario, 2010). Depression may also be present before the onset of anorexia. The purpose of this literature review is to examine the interrelation of anorexia, depression, and perfectionism.

### Factors in the Development of Anorexia

Research has suggested that instead of one risk factor, a combination of risk factors may lead to anorexia. For example, gender has been shown to play a role (National Eating Disorders Association, n.d.). Women are 10 times more likely than men to develop anorexia, and 90% of the people diagnosed with anorexia are women. This latter finding could be due to men being diagnosed with anorexia less often (Agras, deZwaan, Hayward, Jacobi, & Kraemer, 2004; National Eating Disorders Association, n.d.). Genes

are another factor. Research has found a link with chromosome 1, for example (Berrettini et al., 2002). Age is another factor, as the majority of girls developing anorexia are diagnosed during adolescence or early adulthood. High parental expectations, caregivers with a history of depression, physical abuse, and sexual abuse are additional correlated factors.

Caregivers can have a profound effect on a child's well-being, and parent-child relationships that lack good communication and supportive interactions can be detrimental. Conflict, criticism, and hostility can negatively affect a child's emotional well-being and have been linked to anorexia (Ellingson et al., 2009). Interestingly, family-based therapy is one of the most effective forms of treatment for anorexic girls (Dennis et al., 1999). Couturier, Isserlin, and Lock (2010) found an average weight gain of 15 lbs for 86 girls by the end of their 6- or 12-month treatment with family-based therapy. Furthermore, 96% percent of them no longer met the criteria for diagnosis as anorexic.

### Perfectionism

Perfectionism comes in two forms: self-oriented and socially-prescribed (Besser, Flett, Hewitt, McGee, & Sherry, 2004). Self-oriented perfectionism is characterized by abnormally high personal standards. In socially-prescribed



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perfectionism, the individual believes that others have imposed irrationally high standards and that she or he must meet them (Bardone-Cone, 2007).

The causes of perfectionism are unknown, but research has found that childhood and adolescent peer groups are critically involved. Caregivers have also been found to play a very important role (Bear & Minke, 2006; Flett & Hewitt, 2002; Levesque, 2011). When caregivers have high expectations of their children and criticize them if they fail to meet these expectations, children may internalize the expectations. This can have an exaggerated effect during adolescence, when individuals are more self-conscious and aware of social standards. This makes them more likely to be affected by others' expectations of them (Baban, Damian, Negru, & Stoeber, 2013).

Perfectionism has been strongly linked to eating disorders, but anorexia has a much higher correlation with perfectionism than bulimia does (Forbush et al., 2007). Self-oriented perfectionism has a stronger correlation with anorexia than socially-prescribed perfectionism does (Bardone-Cone, 2007; Bardone-Cone et al., 2007; Dohm et al., 2008; Forbush et al., 2007). Self-oriented perfectionism in adolescent girls is manifested in concerns about their

weight, shape, and eating habits and in dietary restraints (Byrne, Fursland, Lampard, & McLean, 2012).

Forbush and colleagues (Forbush et al., 2007) found that perfectionism is related to a variety of unhealthy eating behaviors but is most strongly related to fast-purge behavior. Researchers have also found that the relationship between perfectionism and binge eating was mediated by fasting. Bulimia and anorexia are both characterized by fasting and by high levels of perfectionism. However, binge-eating disorder does not have perfectionism as a risk factor, and no fasting is involved.

### Depression

Depression is more complicated than perfectionism. In anorexia, it is difficult to determine whether the patient had depression before the onset of the disorder or if she or he developed it as a result of the disorder (Jaret & Nazario, 2010). Perfectionism can cause girls to feel like they are failing and may lead them to become depressed. It is therefore unclear whether perfectionism leads to both depression and anorexia or if perfectionism predisposes adolescents to anorexia, which leads to the development of depression.

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**Depressed Versus Non-depressed Anorexia**

Andrews and colleagues (Andrews et al., 1986) studied "semi-starvation neurosis", which originally was observed in victims of World War II. When their depression levels were measured, depression was higher when their caloric intake was reduced than when their eating habits returned to normal. This would suggest that depression is affected by caloric intake. In anorexia, the reduction of caloric intake may induce depressions.

Bizeul, Brun, and Rigaud (2002) found that girls who were severely depressed had mean scores two times greater than that of girls who were less or not depressed on the inventory. Control respondents actually had a greater "slimness-wish" and body-dissatisfaction scores than restrictive-type anorexia patients but also scored higher than restrictive-type anorexia patients on the bulimia and perfectionism scores (Bizeul et al., 2002). Thus, there seemed to be a particular link between anorexia and depression.

**Antidepressants and Anorexic Relapse**

Deep and colleagues (Deep et al., 2001) found that when anorexic patients were released from hospitals, patients who were administered fluoxetine (an antidepressant) instead of a placebo drug showed a dramatic

rate of weight gain and a reduction of eating disorder symptoms. If patients showed any signs of their eating disorder worsening, or if they did not feel better after four weeks, they were allowed to withdraw from this study. With fluoxetine, 63% of the patients completed the 1-year study. However, only 16% of those who were given the placebo finished it, even though family and individual therapy was part of the post-release regimen.

If depression played no role in anorexia, then the rates of completion of the two groups should have been comparable. However, the fact of a dramatic difference between the rates leads to the conclusion that depression is related to anorexia and, specifically, that the pharmaceutical treatment of depression can produce a concomitant remission of the symptoms of anorexia.

**Educating Caregivers**

One way to prevent anorexia is to educate caregivers about the warning signs in girls, such as dieting, perfectionism, depression, and obsessive food-related behaviors. Also, educating caregivers about the role they may play in the development of anorexia may be preventive.

**Conclusion**

It is clear that perfectionism and depression are both substantial factors in the development of anorexia.

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Understanding these risk factors and the way they interact in the development of anorexia can lead to effective programs for prevention in adolescent girls who exhibit them.

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## The Psychological Benefits of Awe



By Rachel Maxwell Kitzmiller

### Abstract

Experiencing awe is beneficial to mental health. Benefits of experiencing awe include the decreased severity of typical symptoms of depression, enhanced self-perception of the quality of life, and increased drive to improve one's future. Despite these benefits, the experience of awe is rarely implemented in treatment programs for physical or mental illness. Although it is not assumed that awe alone can "cure" depression or posttraumatic stress disorders (PTSD), for example, I suggest that elicited awe should play a greater role in treatment programs.

*Keywords:* awe, elicitor, dementia, Holocaust

Many people, regardless of their unique personality and life experience, have felt the powerful emotion of awe. Its triggers are as unique and complex as human personality: a glimpse of the vast and glittering Milky Way galaxy on a clear night, watching a sunrise from the ridge of a mountain, hearing the heart-rending melody of an orchestral suite, or other moving events. In such experiences, one perceives something sufficiently unexpected as to motivate the updating of one's mental schemas (Keltner & Haidt, 2003). The experience of awe may benefit the individual immediately as well as far into the future (Ekman, 1992; Frederickson, 2001). However, studies of the potential therapeutic benefits of awe are limited. In this this review I will examine the experience of awe and therapeutic improvements. My sources include peer-reviewed research studies that included awe-based elicitors in individual treatment plans and for personal improvement.

In reference to awe, Albert Einstein (as cited in Harris, 1995) once said, ". . . he to whom this emotion is a stranger, who can no longer pause to wonder and stand rapt in awe, is as good as dead: his eyes are closed" (p. 1). Because awe is an emotion, it is not easily measured with the typical instruments of scientific analysis. However, though there is little published research on this subject, awe may

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nonetheless function as a substantial aid in treating a number of major psychiatric conditions, including depression, post-traumatic stress disorder, and anxiety. It would be imprudent to say that the experience of awe could solve these problems by itself, but there are some studies that show that its presence certainly helps. Because some researchers have reported a strong correlation between the phenomenon of being awestruck and positive mental health, further exploration of the topic may yield specific methods for enhancing psychological well-being.

#### Understanding the Experience of Awe

The phrases "I'm in awe of . . ." or "That is awesome" are common phrases in many English-speaking societies. While these phrases express that an individual is experiencing awe, the intended meaning or level of awe in each phrase is doubtfully ever the same. Fortunately, researchers have provided definitions by which to standardize the phenomenon when it is reported.

#### The Concept of Awe: An Overview

Keltner and Haidt (2003) defined awe as the emotion that arises when one encounters something so "vast that it requires mental accommodation" (p. 297). Such accommodation is the adjustment of mental structures to experiences that could not previously be understood (Piaget

& Inhelder, 1969). Edmund Burke (1757/1990) described awe, or "the sublime" (p. 61), as the emotion that occurred when the mind attempted to grasp the greatest features of the universe, including power, terror, vastness, infinity, and obscurity. Schneider (2004) defined awe as "a fluid attitude which incorporates wonder, dread, mystery, veneration, and the embracing of paradox" (p. xvi). It also includes experiencing a meaningful process of change while in the presence of unfathomable and overwhelming stimuli.

#### Elicited Awe

Awe is not limited to gold medalists, astronauts, or intrepid adventurers. In fact, most researchers have found that awe is a regular feature of human life. Schurtz, Blinco, Smith, Powell, Combs, and Kim (2012) reported that middle-aged Americans experience awe powerfully enough to give them goose bumps about two times a week.

Natural (unconditioned) elicitors of awe include natural disasters such as severe thunderstorms and tornadoes (Rudd, Vohs, & Aaker, 2012), personal events such as childbirth or a successful major surgical procedure, and unparalleled structures, such as the Grand Canyon or the Great Wall of China. Each elicit an awareness of something previously unknown or unimagined.

### Assessing the Benefits of Awe

When individuals experience something outside their assumed reality, they must either deny what they have experienced or extend their perception of reality (Keltner & Haidt, 2003). Among the potential benefits of the experience of awe that psychologists have identified are increased motivation to acquire new knowledge (Carstensen, Isaacowitz, & Charles, 1999), a greater tendency to help someone in distress (Darley & Batson, 1973), a momentary boost in life satisfaction (Rudd et al., 2012), a reduction of aggressive driving (Nationwide Mutual Insurance Company, 2008), more efficient use of time (Csikszentmihalyi & Hunter, 2003), and the reduction of symptoms of depression (Roxburgh, 2004). Schurtz et al. (2012) have asserted that the experience of awe has the potential to “stabilize social hierarchies and undermine the detriments of envy...and greed” (p. 205).

The relationship between awe and the perception of time is one in which awe elongates or expands time by accentuating the present moment (Vohs & Schmeichel, 2003; Rudd et al., 2012) or by instilling the sense of total timelessness (Csikszentmihalyi & Hunter, 2003). The effects of altered temporal perception include socioemotional selectivity (Carstensen et al., 1999),

engagement in volunteer efforts and community service (Strober & Weinberg, 1980), increased frequency of family meals at home (Neumark-Sztainer et al., 2003), and consuming less fast food (Darian & Cohen, 1995).

### Negative Elicitors

Some researchers (Burke, 1757/1990; Rudd et al., 2012; Schneider, 2004) have argued that awe can be elicited by negative events as well. Examples include witnessing the death of a loved one, watching a tornado destroy a house, or encountering monstrous ways in which people have treated other people. In interpreting the effects of negative elicitors of awe, it should be understood that awe does not override personal agency. Just as an individual can walk away from a positive experience of awe and subsequently become unhappy, individuals who have experienced some of the greatest horrors affirm that their experience changed them for the better (Frankl, 2000).

**Victor Frankl’s experience of awe.** During World War II, Victor Frankl spent three years as a prisoner in the Auschwitz and Türkheim concentration camps until he was liberated by American troops in 1945 (Frankl, 2000). The atrocities Frankl experienced produced insights into the monstrosity of human behavior. Frankl wrote that such events forced him to expand his understanding of personal



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identity, including an understanding of what can and cannot be taken from a person. According to Allport (1984), this understanding may heighten the experience of awe within events that one normally takes for granted. Specifically, Allport (1984) wrote that “Hunger, humiliation, fear, and deep anger at injustice are rendered tolerable by closely guarded images of beloved persons, by religion, by a grim sense of humor, and even by glimpses of the healing beauties of nature—a tree or a sunset” (p. 11). This reflection contrasts with what Frankl (1959) wrote about those who found no such redemptive images:

“. . . often it is just such an exceptionally difficult external situation which gives man the opportunity to grow spiritually beyond himself. Instead of taking the camp’s difficulties as a test of their inner strength, they did not take their life seriously...they preferred to close their eyes and live in the past. Life for such people became meaningless.” (p. 93)

### **The Contemporary Exclusion of Awe**

American society has drastically changed throughout the centuries since its emergence. A primary reason for such change is the rapid evolution of technology in that time. Yet, some see today’s technological feats as a “culprit for blame” (Goldsmith, 1993, p. 16) in some of society’s greatest

problems. Americans now live in a world where common devices allow almost anyone to communicate with another at any distance at any time with almost no delay. Crossing an ocean has been shaved from months to hours. Current medical practices have almost doubled the life expectancy rate of white Americans since 1900 (Caplow, 2001). The internet has made information about countless different topics available instantaneously, and manual labor is widely performed by machines. In short, events that were once monumental are now ordinary, leaving a seemingly smaller space for awe.

### **Medication over Awe**

American society has long associated awe with sentimentality, which is now viewed as questionable and possibly undesirable (Johnson, 1995; Nash, 1999). In addition, advances in medicine have displaced the role of awe in assisting recovery from physical and mental illnesses. The medical model asserts that changes in a patient’s anatomy or physiology or both are responsible for the remission of symptoms as a result of treatment. Thus, the role of awe in promoting recovery is foreclosed.

### **Awe is Difficult to Prescribe**

Despite published evidence that the experience of awe has therapeutic benefits, it is not directly implemented

in mental-health treatment programs. As previously stated, the prevailing view is that, because awe is an emotion, it cannot be precisely measured. Therapists cannot hold up a yardstick against awe in the effort to determine how much a patient has received or how much more is needed. Another reason for the absence of the application of awe in treatment programs is because awe elicitors are difficult to prescribe. Their positive influences are a function of the previous life experiences of the patient and thus not readily replicable across patients.

#### **Making Awe a Conscious Addition to One's Life**

Improved treatment programs could offer a structure that would allow patients to experience awe elicitors that would not usually be available to them. Potential roadblocks to the experience of awe might be overcome by current technologies, for example, an IMAX tour of the Grand Canyon or of a single cell. Social support that occurs as part of treatment groups during awe-instilling experiences might amplify their positive effects.

The self-taught and self-applied experience of awe outside of therapy might bring its own benefits to an individual. A perception of enhanced independence is a potential benefit of self-elicited awe (Roxburgh, 2004) as are self-concept (Shiota et al., 2005), self-worth, and self-

confidence (Branden, 1994). Increased self-confidence has been shown to reduce depression symptoms (Accordino, Accordino, & Slaney, 2000). The experience of awe has also been shown to decrease fear (Schurtz et. al, 2012) and anxiety (Sarnoff & Zimbardo, 1961). The experience of awe also have been linked to improved health goals (Vesico, Wilde, & Crosswhite, 2005) and a further enhanced value an individual places on living in the present moment (Adler & Fagley, 2005; Rudd et al., 2012; Vohs & Schmeichel, 2003). Valuing the here-and-now may also reduce post-traumatic stress disorder symptoms (Hackmann, Ehlers, Speckens, & Clark, 2005).

**Improvement of dementia symptoms following exposure to awe-eliciting music.** Awe elicited by music has also been found to reduce the symptoms of Alzheimer's disease, PTSD, and dementia (Clair, 1996; Crystal et al., 1989; Sinclair, 2010; Svansdottir & Snaedal, 2006). Typically nonresponsive and forlorn patients seem to "come back to life" and remember their past when they are exposed to music that has personal significance. The case of Henry, a patient who suffered from dementia in almost total silence for 10 years, is illustrative (Cohen, 2011). After many months of treatment, his therapists determined that the key to his improvement was listening to the band that was his

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favorite when he was a young man. Before exposure to their recordings, Henry expressed no memory of his past, appeared to be very depressed, and never spoke to others. Upon listening to the music, his persona seemed to change. His eyes lit up, he no longer sat hunched over in his wheelchair, he moved his arms and rocked in his seat, while humming and singing along with the music. When the music was taken away, Henry would respond to questions in detail, recall events and people, and engage in active conversation. According to Cohen, "These musical favorites tap deep memories not lost to dementia and can bring residents and clients back to life, enabling them to feel like themselves again, to converse, socialize and stay present" (p. 2). Although this response typically faded after about 15 min, it reappeared each time Henry was re-exposed to the music.

### Conclusion

Awe's therapeutic potential is frequently ignored professionally and neglected individually. More research should be done in the near future on the direct influences awe has upon individuals. Comparisons between self-elicited awe and professionally-elicited awe would be an asset to further understanding the influence of awe. In a world where instant access to information and gratification prevails, there is little inclination to take the time to re-instill a sense of

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wonder about the world in which life unfolds. Fortunately, many of the most powerful awe-elicitors cost very little money to experience. Individuals must simply take the initiative to seek them in the context of personal life experiences and values.

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## Pornography Use in Romantic Relationships



By Nathan Leonhardt

### Abstract

Despite the increasing attention to pornography as a research topic over the past 20 years, little research has explored the relation between pornography use and both sexual satisfaction and infidelity in a romantic relationship. Research results consistently show that pornography use is positively correlated with infidelity in romantic relationships, but the evidence is mixed for short-term versus long-term sexual satisfaction. Pornography use is positively associated with short-term sexual satisfaction but not necessarily long-term satisfaction. However, studies of self-esteem and delay of gratification indirectly suggest that pornography use has a negative influence on long-term sexual satisfaction.

**Keywords:** pornography, infidelity, romantic relationships, sexual satisfaction



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Internet use has played an important role in making pornography a \$13 billion industry in the United States and a \$93 billion industry worldwide (Lambert, Negash, Stillman, Olmstead, & Fincham, 2012; Poulsen, Busby, & Galovan, 2013). Moreover, researchers have taken greater interest in pornography's influence. From 1970 to 1990, only 161 peer-reviewed articles appeared in PsychINFO on the subject of pornography, but since 1990, 370 articles have appeared (Poulsen et al., 2013). Carroll, Padilla-Walker, Nelson, Olson, Barry, and Madsen (2008) claimed that pornography's growing prevalence is accompanied by an increase in its use and acceptance. Specifically, the authors reported that 66.5% of males in their sample considered pornography culturally acceptable and 86.1% used it in the past year; meanwhile, 48.7% of females considered it acceptable and 31% used it.

Most researchers agree that pornography is the display of sexually explicit material to stimulate sexual arousal and activity (Carroll et al., 2008; Lambert et al., 2012; Olmstead, Negash, Pasley, & Fincham, 2013). Recently, pornography's association with romantic relationships has been the focus of research (e.g., Lambert et al., 2012; Poulsen et al., 2013). For example, Olmstead and colleagues (2013) found that 70.8% of men and 45.5% of

women considered pornography use acceptable in a romantic relationship. Improvement in mood, sexual satisfaction, and sexual fantasies were cited as positive outcomes. Those who considered the use of pornography unacceptable feared that it would produce a decrease in trust and mutual respect and an increase in infidelity (Lambert et al., 2013; Stewart & Szymanski, 2012).

Some researchers have asserted that pornography use exerts both positive and negative effects on romantic relationships. They agree that pornography use may increase the risk of infidelity, but it also increases sexual satisfaction (Maddox, Rhodes, & Markham, 2011; Olmstead et al., 2013). Similarly, they have found that the manner in which couples use pornography influences relationship outcomes. When both partners consent to use non-violent pornography, no negative effects are seen, and sexual satisfaction increases (Maddox et al., 2011; Olmstead et al., 2013). Other researchers have found that pornography use is associated with negative outcomes, regardless of the manner of use (Bergner & Bridges, 2002; Stewart & Szymanski, 2012).

The length of a romantic relationship is also a factor in pornography-produced sexual satisfaction (Poulsen et al., 2013). Studies with samples of emerging adults in short

term relationships reveal a positive association between pornography use and sexual satisfaction. (Lambert et al., 2012; Olmstead et al., 2013). However, in samples where couples have had a more permanent relationship over a period of time, they are more likely to report a negative association between pornography use and sexual satisfaction. (Poulsen et al., 2013; Stewart & Szymanski, 2012).

### **Short-term Sexual Satisfaction**

The most common method of measuring sexual satisfaction is self-report. Studies of sexual satisfaction usually focus on emerging adults, who tend to report an increase in sexual satisfaction in their short-term romantic relationship when using pornography (Lambert et al., 2012; Olmstead et al., 2013).

### **The General Rule**

Hald and Malamuth (2008) and Olmstead et al. (2013) found that “spicing up” the relationship is a major reason for the increased sexual satisfaction in a romantic relationship. The following quote from a 23-year-old man exemplifies this view:

I do not see any harm in viewing explicit materials in any circumstance. It is normal and gives the individual ideas to make sex more interesting. It is

okay to watch them (sexually explicit materials) together or alone because, once again, it helps excite the relationship when someone brings something new to the bedroom (Olmstead et al., 2013, p. 630).

The view that the use of pornography “excites” the relationship is not held only by men. Rogala and Tyden (2003) reported that pornography use made young women feel “sexier”. Overall, both men and women appear to have higher sexual satisfaction from pornography use in short-term romantic relationships.

The way couples use pornography in their romantic relationship is a primary factor in whether sexual satisfaction increases (Maddox et al., 2011; Olmstead et al., 2013; Poulsen et al., 2013). Maddox et al. (2011) found that viewing pornography alone while in a romantic relationship decreased the couple’s sexual satisfaction. However, couples who used pornography together or in some combination of viewing it alone and together, reported higher levels of sexual satisfaction than couples who completely abstained from pornography use.

### **The Exception**

Couples who report high levels of religiosity appear to be the exception to the general rule. For them, pornography use has a negative influence on short-term

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sexual satisfaction in romantic relationships (Olmstead et al., 2013). Carroll et al. (2008) found a subset of individuals who were using pornography without believing it was acceptable. Subsequently, Nelson, Padilla-Walker, and Carroll (2010) hypothesized that religiosity would be a major contributor to the discrepancy between pornography use and acceptance. Their results revealed that 35% of those who identified themselves as religious used pornography, but none stated that pornography use was acceptable. Olmstead and colleagues (2013) found that almost all respondents who disapproved of pornography use under any circumstance, including romantic relationships, used religious reasoning for their disapproval.

Individuals with high levels of religiosity report a high level of shame associated with pornography use in a romantic relationship (Nelson et al., 2010; Olmstead et al., 2013). Such shame may have a negative influence on sexual satisfaction (Woo, Morshedean, Brotto & Gorzalka, 2012). An alternative explanation involves the perspective of religious individuals on committed relationships. Woo et al. (2012) found that religious individuals are more likely to wait for marriage before having sexual relations. Although religiosity appears to have a negative influence on short-term sexual satisfaction (Woo et al., 2012), those who wait for

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marriage before having sexual relations may end up having higher sexual satisfaction in the long term (Busby, Carroll, & Willoughby, 2010).

### Long-term Sexual Satisfaction

Because most studies of the influence of pornography use on romantic relationships involve emerging adults, they fail to adequately account for long-term sexual satisfaction (Malamuth et al., 2011; Olmstead et al., 2013; Stewart & Szymanski, 2012). One factor that sets long-term sexual satisfaction apart from short-term sexual satisfaction is physical attractiveness, which declines with age (Sanchez & Kiefer, 2007). Poulsen et al. (2013) were among the few researchers who included respondents over 30 years of age. The age range was 17 to 58, with the median age of 32 for males and 29 for females. The researchers found a weaker relationship between sexual satisfaction and pornography use in romantic relationships than found in previous studies of emerging adults. In particular, the man's use of pornography was negatively associated his own sexual satisfaction and the sexual satisfaction of his partner.

### Self-Esteem

Decreased self-esteem (Bergner & Bridges, 2002; Stewart & Szymanski, 2012) and the failure to delay gratification (Busby et al., 2010; Mischel, Shoda, &

Rodriguez, 1989) may be associated with the negative outcomes from pornography use on long-term sexual satisfaction in romantic relationships. Sanchez and Kiefer (2007) showed that pornography use was negatively associated with self-esteem in both men and women. Although pornography use was negatively correlated with men's self-esteem as their physical attractiveness declined, the negative correlation with women's self-esteem was more immediate and may have been due to women's greater sensitivity to the objectification of women that is characteristic of pornography (Bergner & Bridges, 2002; Sanchez & Kiefer, 2007; Stewart & Szymanski, 2012).

### **Delay of Gratification**

The delay of gratification is defined as waiting for an appropriate time and place to engage in a tempting act (Berk, 2009). Pornography use may compromise an individual's ability to delay gratification (Lambert et al., 2013; Maddox et al., 2011). Busby and colleagues (2010) examined the relation between the delay of gratification and sexual satisfaction in romantic relationships. Controlling for variables like religion and education, they found that individuals who waited for marriage before engaging in sexual relations had higher levels of sexual satisfaction than

comparably-aged peers with a history of premarital sexual relations.

Furthermore, the same researchers suggested that a higher incidence of positive sexual experiences in longer-term romantic relationships was associated with a greater focus on the emotional aspects of sexual satisfaction as opposed to an exclusive focus on the physical aspects. Given pornography's emphasis on the latter, as physical attractiveness declines with age, pornography using couples may be less likely to experience long-term sexual satisfaction because of the weaker influence of emotional factors in their romantic relationship (Lambert et al., 2012).

### **Infidelity**

Many females accept pornography use in romantic relationships because they consider pornography a deterrent to infidelity (Olmstead et al., 2013). Specifically, they view the increased sexual arousal that pornography use brings as increasing their attractiveness to their partner (Olmstead et al., 2013). Maddox and colleagues (2011) called this view into question as a result of research in which couples who used pornography reported half the incidence of sexual fidelity as those who did not use pornography. Although the study involved emerging adults, other researchers have shown that pornography use in romantic relationship is

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consistently and negatively related to fidelity (Lambert et al., 2012; Olmstead et al., 2013; Poulsen et al., 2013).

### Flirtatiousness

Lambert et al. (2012) researched pornography's influence on specific aspects of commitment and infidelity. One study involved self-report by respondents who had indicated they were in an exclusive relationship and were asked about pornography use and their personal commitment to the relationship. Overall, a mean negative correlation ( $r = -0.22$ ) was found between pornography use and commitment. The correlation coefficient for men was  $-0.52$ .

In another study by Lambert et al. (2012), the respondents were all in an exclusive heterosexual romantic relationship and reported their pornography use. Three weeks later, they were asked to chat in a new social network with a research assistant. They were told that the conversation was part of a test of the network, but the real aim of the study was to establish the respondent's level of flirtatiousness with an unknown person with the opposite gender. A positive correlation ( $r = 0.38$ ) between pornography use and level of flirtatiousness was found.

### Sexual Infidelity

The same researchers (Lambert et al., 2012) also studied the incidence of sexual infidelity among pornography users in exclusive romantic relationships. Infidelity was measured by the self-report of incidents of "hooking up," which is a casual sexual encounter without the expectation of future contact (Paul & Hayes, 2002). Previous researchers had used the same method (Fielder & Carey, 2010; Fincham, Stanley, & Rhoades, 2011; Littleton, Tabernik, Canales, & Backstrom, 2009). Lambert and colleagues found a positive correlation ( $r = 0.22$ ) between pornography use and the number of hook-up partners.

### Conclusion

Although much has been learned about the influence of pornography use in romantic relationships, much remains to be learned, particularly concerning pornography use's long-term effects on sexual satisfaction in romantic relationships. Additional longitudinal studies are needed. Specifically, further studies of the effects of pornography use on romantic partners' sexual satisfaction and fidelity as their physical attractiveness declines would be valuable.

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## Cultivating Integrity Through Transformational, Servant, and Ethical Leadership



By Daniel Manjarrez

### Abstract

Today's business world is facing challenges in ethics and moral practice. Though these issues are found among employers and employees of all levels, the leaders of an organization can work to address such issues through leadership styles that emphasize a meaningful employer-employee relationship and honest workplace behavior. The present article discusses the transformational, servant, and ethical leadership styles within the workplace and their effects on employees. Implementing such styles will not only lead to a decrease in unethical workplace behavior, but will also enable individuals to gain a stronger sense of self-identity and integrity. This results in stronger performance for the betterment of their teams, their leaders, and their companies. The potentially harmful effects found in organizational citizenship behavior are also discussed.

**Keywords:** leadership, integrity, organizational citizenship behavior

The business world struggles to maintain its luster in the face of continued corruption. In 2012, the median loss to corporations due to fraud committed by owners and executives was \$573,000, by managers \$180,000, and by other employees \$600,000 (Association of Fraud Examiners, 2012). These losses suggest a widespread lack of integrity at all levels of business and signals the pressing need for leadership that will restore integrity throughout the corporation.

Leadership refers to heading a group and guiding it to the accomplishment of collective goals. In the workplace, effective leaders seek to establish an efficient work environment that encourages such accomplishment. When highly visible in the workplace, a business leader can substantially affect the quality of employee performance and overall success.

Organizational psychologists, management theorists, and business strategists have evaluated leadership styles since the early 20<sup>th</sup> century (Kieu, 2011; Suber, 2013). As a result, many styles have been defined and implemented in the workplace. Examples include the *transactional* style, which primarily focuses on a reward system, and the *authoritarian* style in which leaders ultimately determine company policy and procedures. These styles, and

variations on them, continue to be practiced today. Most styles, however, do not emphasize integrity.

The implementation of the *transformational*, *servant*, or *ethical* leadership style can encourage workers to adopt a self-identity founded on morals and thereby facilitate the reduction and prevention of unethical workplace behavior. A lack of emphasis on integrity may be a contributing factor to corrupt behavior in the workplace. This type of behavior may result from a lack of strong self-identity in the workplace and beyond it.

Leadership styles can promote integrity in the workplace. Transformational leadership appeals to higher ideals and moral values (Ng & Sears, 2012). Similar in approach is servant leadership (Dion, 2012), which primarily focuses on creating more personal relationships with employees. Perhaps the style most directly connected to integrity is ethical leadership, which encourages the leader to demonstrate appropriate conduct through personal action and interpersonal relationships (Brown, Treviño, & Harrison, 2005).

### Character Traits and Leadership Styles

I define integrity as a set of moral values that require honesty regardless of one's social situation. Petrick and Quinn (2000) explained that the construct of integrity

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consists of process, judgment, development, and system dimensions. From working on menial tasks with co-workers to completing major assignments on one's own, an employee's integrity affects how she or he performs. Wherever ethical, servant, or transformational leadership is applied, employees are encouraged to cultivate integrity and to practice ethical work behavior. To maintain such behavior, employees must develop a self-identity in which they see themselves as belonging to a collective entity that seeks to achieve its vision with integrity.

### Self-Identity

Self-identity refers to how people define themselves as individuals, relationship partners, and group or organizational members (Brewer & Roccas, 2001; Sedikides & Brewer, 2001). Zhang and Chen (2013) explored self-identity on three levels. On the individual level, people view themselves as unique. On the relational level, self-identity is extended to social identification with small groups that value interdependence among group members. On the collective level, people adopt group-defining characteristics as their own and see themselves as members of a larger group. An effective corporate moral code operates at the collective level of self-identity and establishes a mentality in which employees focus on the company as a whole. This

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collective mindset embraces leadership styles (namely, the transformational, servant, or ethical style) that focus on establishing group integrity and relating to employees on an interpersonal level. As a result, employees are less inclined to participate in unethical acts in the workplace.

### Transformational Leadership

By applying a transformational leadership style, mutual goals and trust emerge between a leader and her or his followers. A *transformational leader* establishes mutually beneficial goals, an emotional bond with employees, and a vision that is assimilated throughout the organization (Bass & Riggio, 2006; Dvir, Kass, & Shamir, 2004; Kieu, 2011). Employees looking to realize their own agenda before achieving company goals experience cognitive dissonance and resolve it by establishing trust and respect for their leaders. Additionally, the acknowledgement of employees' needs and abilities strengthens the leader's position as a respected mentor in the workplace (Schriesheim, Wu, & Scandura, 2009). Implementing this leadership style results in employee respect and personal commitment to behave in an honest manner, thereby promoting the organization's integrity.

### Servant Leadership

The qualities a *servant leader* possesses prevent disunity within the workplace and promote mutually beneficial relationships and ethical behavior among employees. According to Greenleaf (1973), servant leadership emphasizes both the leader's responsibility for the organization's success, as well as her or his moral responsibility to the relevant stakeholders. Servant leaders place employees and the company before anything or anyone else; they motivate and guide employees to practice ethical behavior and to practice moral reasoning (Peterson, Galvin, & Lange, 2012). Furthermore, servant leadership promotes organizational performance (Choudhary, Akhtar, & Zaheer, 2013). Its focus on interpersonal cohesion effectively improves not just the workplace environment but also employees' efforts and results.

### **Ethical Leadership**

Through the practice of ethical leadership, serious acts of dishonest behavior can be avoided by addressing less-serious acts of dishonesty. For Brown, Treviño, and Harrison (2005), the leader's actions and interpersonal relationships demonstrate normatively appropriate conduct and thereby enhance communication and decision making within the organization. Ethical leaders further aim to represent the best interests of their organization in a morally

accepted manner (Resick, Hargis, Shao, & Dust, 2013). Yidong and Xinxin (2012) explained that ethical leaders consciously act as moral people who practice honesty, collective motivation, and integrity. They are highly influential and visible in the workplace. Their display of leadership also allows employees to trust them and to reciprocate with similar behavior (Brown & Mitchell, 2010; Mayer, Keunzi, Greenbaum, Bardes, & Salvador, 2009). As a result, unethical organizational behavior is avoided and serious violations are prevented.

These three leadership styles share a common approach in that they seek to establish and strengthen the employer-employee relationship. More specifically, employers adopting such styles demonstrate the desire to collaborate, interact, and involve employees in the overall being of their company and its objectives in an honest and appropriate manner. As such, a sense of teamwork is fostered: Employers are seen more as wanting to work with employees as opposed to merely the people for whom employees work. The workplace thus begins to sustain a collective mindset that abandons the image of a strictly rank-and-file organization. Furthermore, employees' self-identity resonates with their leader's approach to working with them.

The potential for workplace integrity increases and the result is unified progress.

### **Organizational Citizenship Behavior**

Along with applying leadership styles that encourage a unified work environment, it is also important to recognize and eliminate negative aspects of organizational structures. Bolino, Klotz, Turnley, and Harvey (2013) argued that researchers' evaluation of positive organizational behavior has neglected the negative effects of organizational citizenship behavior (OCB), which Organ (1988) defined as discretionary behavior that is not formally identified within the organizations reward system but nevertheless promotes the organization's effective functioning. Later, Organ (1997) revised the definition to include employee acts that support the overall social environment in which organizational tasks are carried out. According to Bolino et al. (2013), OCB also includes employees' selfless behavior as part of a collective mentality.

The lack of information about OCB's potentially negative effects has led researchers to question the current consensus that, because of its proven benefits, OCB is primarily carried out through selfless motives (Bergeron, 2007; Bolino, Turnley, & Niehoff, 2004). For example, Bolino (1999) pointed out that employees' selfless behavior

may not necessarily be intended for the company's benefit but for enhanced self-presentation. Thus, employees might volunteer to complete co-workers' unfinished reports or other assignments because such unsolicited services will enhance their image and further advance their own standing in the company. Ultimately, such behavior may undermine the company's overall performance.

Another potentially negative aspect of OCB involves excessive employee overtime. Bolino and Turnley (2005) claimed that engaging in such activity could possibly bring unnecessary stress, work overload, and work-family conflict. Although this claim has been empirically supported, Bolino et al. (2013) pointed out that their method of detecting a correlation between personal gain and the resulting corporate-level consequences did not take into consideration the more traditional factor of employee conscientiousness and, for that reason, their conclusions may have limited generalizability.

### **Discussion**

By adopting a collective, moral self-identity throughout the workplace, employees may perform according to a selfless attitude and thereby enhance the achievement of company goals. Practicing transformational, servant, or ethical leadership creates a work environment

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characterized by the integrity needed for a company to not only succeed but to avoid corrupt practices that may lead to the deterioration of a company's brand and relative standing. Though it may not be possible to fully implement all three styles concurrently, each of them independently promotes ethical employee behavior and encourages workplace integrity.

The mutually beneficial relationships that transformational leaders seek to implement enhance the alignment of individuals' visions for the company and promote overall satisfaction among both employers and employees. The servant-leadership style looks to achieve goals within a team vision and works best when workplace relationships embrace mutual trust. The moral code and behavior an ethical leader demonstrates can motivate employees to adhere to the same.

No matter how skilled the leader is in any of these three styles, their effect will be constrained if employees do not recognize the connection between the styles and the company's collective self-identity. It is further important that OCB be in place. If such an environment exists, the leadership styles will resonate with employees' self-identity and therefore, be more readily accepted. Indeed, the integrity

of a company relies not only on its leader but also on a resonant work environment.

### Suggestions for Additional Research

Future research should examine the potentially negative motives for OCB in order to increase understanding of the relation between OCB and the three leadership styles described earlier. Such research may utilize existing tests designed to measure employee motivation in terms of personal goals, company goals, or both.

Employee motivation has also been measured using the constructs of *intrinsic* motivation, which involves personal characteristics, such as goal-setting, one's willingness to work, the energy spent on tasks, etc., as well as *extrinsic* motivation, which includes external factors such as the work environment, work incentives, one's employer, etc. (Benabou & Tirole, 2003; Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve, 2009). One such scale, the *Work Extrinsic and Intrinsic Motivation Scale* (WEIMS), seeks to understand which of the two motivations is more influential in an employee's performance (Tremblay et al., 2009). Similarly, the *Global Motivation Scale* (GMS) is designed to detect intrinsic and extrinsic drives (Guay, Mageau, & Vallerand, 2003).

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These potential avenues of research within contexts of the practice of transformation, servant, and ethical leadership could extend organizational leaders' understanding of their employees' motives. If those motives do not promote workplace integrity, leaders can implement modifications of the workplace environment that encourage different motives. By doing so, both leaders and employees may work more effectively, and honestly, with each other.

### Conclusion

A mutually professional relationship between leaders and their employees allows for a collective effort resulting in unified and successful organizational performance. It is not necessarily harmful for employees (or leaders, for that matter) to have personal ambitions that motivate them to excel in their positions. What is arguably more essential, however, is the ability to prioritize company personal goals amid personal goals, and doing so may contribute to a collective, moral mentality and the quality of unity that leads to corporate thriving.

Ideally, all employees practice integrity in the workplace, but the leader has a strong influence on whether or not the ideal is realized. How they view, treat, and communicate with their employees influences OCB and, consequently, company performance. If ethical behavior is

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encouraged and practiced in the workplace by both leaders and followers, integrity will increase, catalyzing honest interaction and corporate success.

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## Children and Autism Spectrum Disorder: The Developing Role of Technology in Teaching

### Communication Skills



By Samantha Pehrson

#### Abstract

Children diagnosed with autism spectrum disorder (ASD) often struggle to learn effective communication skills. Researchers have asserted that the best methods for teaching correct communication skills to these children involve technological tools, such as videos, music, and graphics. Implementing these tools into the public school systems and the homes of children with ASD has been shown to improve their development of communication skills and includes educating teachers and parents about the positive effects that utilizing the tools can bring to the daily lives of children with ASD. When and how to implement these tools may depend on a child's level of functioning, and researchers have suggested that further study of children diagnosed with ASD in terms of both their physiological and psychological functioning might identify the appropriate time to begin

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implementing the tools for communication skills development that have the most effective outcomes.

*Keywords:* autism spectrum disorder, technology, children, Picture Exchange Communication System, public school systems

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According to the Center for Disease Control and Prevention (2015), 1 in 68 children are diagnosed with autism spectrum disorder (ASD). The 5th edition of the Diagnostic and Statistical Manual (DSM-5; American Psychiatric Association, 2013), indicates that Asperger's syndrome, pervasive developmental disorder, autism, Rett syndrome, and childhood disintegrative disorder now all belong to the diagnosis of ASD, although the terms Asperger's and autism are still commonly used. Without any current medical treatments to cure ASD, the developmental impairments included in the disorder make life more challenging for both the child and his or her parents. One of the greatest struggles children diagnosed with ASD experience is the inability to communicate effectively. Although this is not always the case (high-functioning children with ASD tend to communicate better), most children with ASD have to be taught communication skills that typically developing children readily learn from infancy. While researchers have made many breakthroughs in understanding how to effectively teach communication and other social skills to children with ASD, little is known about successful strategies for implementing technology as part of those instructions.

Research studies about the effects of using technology in teaching children with ASD have emerged within the last few years. Most of these studies have involved the use of graphics and symbols to teach the children communication skills. One study incorporated a song with graphics to enhance the children's comprehension of the skills being taught (Simpson & Keen, 2010). However, the principal interest of most research studies involving technology and ASD is the effectiveness of the Picture Exchange Communication System (PECS). These study replications are not only taking place in the United States, but across the globe as well. Conclusions being drawn from these diverse studies are demonstrating that technology can be used to help children with ASD worldwide develop better, if not normal, communication skills. Such research has shown which teaching tools involving technology are most effective, how to best implement those tools in education systems and in the home, and the importance of determining when and how to implement these technological teaching techniques based on a child's level of functioning.

#### **Effective Technology-based Teaching Tools**

In the past few years, researchers have discovered multiple teaching tools utilizing technology that appear to

enhance the communication skills of children with ASD, such as the PECS, point-of-view video modeling, and interactive music embedded with graphic symbols (Simpson & Keen, 2010; Tetreault & Lerman, 2010; Travis & Geiger, 2010). These tools have shown increases in children's abilities to request, comment and express verbal utterances, which are included in the definition of effective communication (Ali, MacFarland, & Umbreit, 2011; Travis & Geiger, 2010). With this emerging empirical evidence, educators, psychological professionals, and parents can learn how these tools may enhance the development of communication skills in children diagnosed with ASD.

### **The Picture Exchange Communication System**

The PECS is a six-phase learning system that teaches children to first communicate a specific message using a single picture, then gradually progresses to communication with multi-picture sentences (Ali et al., 2011). This system is used for children who have difficulty forming words into complete sentences by allowing them to instead use pictures that match what they are trying to communicate. Travis and Geiger (2010) conducted a pilot-study in South Africa in which children previously diagnosed with ASD were taught communication skills using the PECS over the course of nine weeks. Post-training sessions also took place to measure

continuing use of the skills learned during the PECS training. The results showed that the children's abilities to speak and form clear sentences and to respond through speech alone or speech with a picture improved significantly due to the PECS training (Travis & Geiger, 2010).

Another study which consisted of children with multiple disabilities, including ASD and visual impairment, also demonstrated positive results. Using a similar methodology as the one used by Travis and Geiger (2010), Ali and colleagues (2011) concluded that each of the children who took part in the study learned how to properly request items and maintained this skill after the PECS training. The children were also able to generalize those skills in natural settings, such as their classrooms. However, because each study only utilized two to three children due to a lack of eligible and cooperative participants, small sample sizes limit the applicability and generalizability of these findings.

Despite sample size limitations, these results provide significant evidence for a need to renovate educational structuring for children with ASD. By incorporating communication systems such as PECS into public school systems, children with ASD can achieve the most effective results to enhance their communication skills. And while the

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PECS system used in these studies did not specify whether or not digital versions of the pictures were used, a strong likelihood exists for using technological means, such as iPads or Interactive Whiteboards (IWBs), in place of tangible pictures. These resources could also become more available at this time because of the prominent advancement of technology replacing tangible learning tools such as books and physical pictures in both home and school settings.

### **Video Modeling Tools**

Another tool being investigated by researchers is point-of-view video modeling (POVM), a system wherein children watch a video demonstrating a certain social skill—such as asking for help from an adult—and learn from the video how to communicate a given script with an adult conversant. Video modeling (VM) is a similar technique in which children watch a video to learn a social skill, but the adult conversant initiates the following conversation instead of the child. Some researchers have stated that VM can be more effective than other methods because it reduces irrelevant stimuli and allows the children to exert greater focus on the relevant communication cues being taught in the videos (Charlop-Christy, Le & Freeman, 2000; Krantz, MacDuff, Wadstrom, & McClannahan, 1991). However, other researchers claim POVVM is even more advantageous

than VM because POVVM further restricts irrelevant stimuli during training, allowing the child to focus directly on the behavior being demonstrated in the video (Tetreault & Lerman, 2010). This greater focus also allows children to quickly understand the optimal characteristics of the model behavior without requiring the adult conversant to explain those characteristics to him or her (Hine & Wolery, 2006). Thus, without the video and the personal interaction with the adult conversant, the children would not learn as proficiently how to generalize the communication skills taught by the video.

One study with findings that are incongruent with the above conclusions is that done by Tetreault and Lerman (2010), which focused solely on POVVM. These researchers found inconclusive results with three children diagnosed with ASD. The researchers examined behavioral skills (eye contact and making a statement before the adult conversant spoke to them) that had not been examined in previous POVVM or VM research but found the children's levels of behavioral skills at the end of the study were not significantly different from their levels of behavioral skills before the study, thus generating ambiguous results concerning these tools working for the acquisition of specific behavioral skills. Although flawed, these results highlight

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the gap in current research concerning the effectiveness of teaching children with ASD communication and behavioral skills through the usage of technology. Therefore, it is critical that such research be examined and replicated to extricate the unsuccessful components and replace them with the most beneficial tools for the development of communication skills for children with ASD.

### **Embedding Music in Teaching Communication Skills**

Music is a commonly used teaching tool for toddlers and children because of its ability to simplify concepts using repetitive melodies and lyrics. Music is also used in many forms of media, such as television and movies, to teach children various concepts. Researchers have shown that when music is implemented in the education of a child diagnosed with ASD, his or her learning increases on a par with normal-functioning children.

Simpson and Keen (2010) focused on autistic children's ability to maintain motivation for learning. The researchers hypothesized that when graphics were embedded into interactive songs to teach young children with autism the names of animals, the children would be able to correctly identify an animal more easily with the music than without it. Specifically, they concluded that the children more effectively learned the names through the interactive

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use of music in PowerPoint slides and on an IWB. In contrast, the children in the "no music" control group did worse at identifying the animal names presented. Exposure to music, changes in the presentation of names, and repetitive sequences of presentation led to higher rates of correctly identifying the symbols (Simpson & Keen, 2010). Such characteristics have also been shown to be appealing to developing toddlers and assist with their memory recall (Ellis & Blashki, 2004; Ricks & Wing, 1975). Simpson and Keen's (2010) usage of PowerPoint slides, an IWB, and interactive music demonstrates how significantly technology is influencing the world of research, and how technology can enhance the effectiveness of children's learning environments. With discovering through empirical research that incorporating technology into teaching communication skills to children with ASD considerably improves those skills for them, the capacity for improved teaching tools can be further researched and developed into globally practiced programs to advance the lives of children with ASD worldwide.

### **Implementation of Technology-based Learning in Public School Systems and Homes**

Researchers who studied children diagnosed with ASD have shown that the use of technology can increase the

learning of communication skills for this population. Subsequently, these researchers have called for further research to involve (a) comparative studies that identify the most effective interventions, (b) larger samples to ensure generalizability, (c) the identification of interventions that are most effective for different age groups and spoken language abilities, and (d) implementation of these interventions in the home (Ali, et al., 2011; Travis & Geiger, 2010). These interests highlight the two settings—school and home— where children spend most of their time and obtain most of their knowledge. These settings are also where children diagnosed with ASD utilize their communication skills the most through social interactions with their peers, teachers, and family members.

### **Implementation in Public School Systems**

Research conducted in public school districts in Georgia (Hess, Morrier, Heflin, & Ivey, 2008) included a series of categories to define the level of intervention used in a classroom: (a) Interpersonal Relationships, (b) Skill-based, (c) Cognitive, (d) Physiological/Biological/Neurological, and (e) Other (see Simpson et al., 2005, for a further description of the categories). The researchers then surveyed multiple teachers in different grade levels about the intervention techniques used in their

classrooms for students with ASD. The results indicated that most of the techniques used by both regular and special-education teachers were less than effective for instructing that student population. Nearly one-third of the techniques the teachers used were not scientifically based and, in the researchers' opinion, should not have been utilized (Hess et al., 2008; Simpson et al., 2005). Such results further emphasize the need for research to be conducted using teaching techniques that can be used for both normal-functioning children and those with mental development disorders like ASD. And because most educators know or are learning the current technological teaching methods for normal-functioning children, they will begin to utilize those methods for students diagnosed with ASD as well once research has sustained the effectiveness of those teaching techniques for all types of students.

### **Implementation in the Home**

The involvement of parents in the education of a child with ASD is a crucial aspect of the effectiveness of his or her education. Children whose parents are involved in teaching within the home learn more efficiently than those without comparable parental involvement (Ingersoll & Dvortcsak, 2010; Simpson et al., 2005). When parents use interactive, direct teaching approaches that encourage



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communication skills development, such as allowing the child to initiate interaction appropriate to parental responses, the child will more effectively generalize those skills in other social settings. The results from these studies also indicate that these teaching techniques within the home are most beneficial when incorporated into a daily routine, such as during meal and play times (Ingersoll & Dvortcsak, 2010). These results suggest the significance of children with ASD learning communication skills in other settings besides school. Because skills like communication are generalizable to so many different settings, the children need to learn how to effectively utilize and improve those skills through practice in multiple settings and thus simultaneously improve their behavioral and social skills.

### **Implementing Teaching Techniques Based on Level of Functioning**

Children diagnosed with ASD are typically given a label of low-functioning, moderate-functioning, or high-functioning. Little research exists about the methods of teaching communications skills appropriate for level of functioning in children diagnosed with ASD. Future research needs to assess this component with new and current teaching methods, while also separating participants into distinct groups based on level of functioning. If

researchers can discover which techniques are best suited for each distinct level of functioning, improvements in the teaching and learning of communication skills for children diagnosed with ASD could increase dramatically through such customization.

Watson, Baranek, Roberts, David and Perryman (2010) focused on child-directed speech (CDS) and physiological factors of children with ASD to predict their ability to communicate effectively as they grew. CDS, also known as “baby-talk,” is a simplified communication style that parents and other caregivers often use with children. Researchers have previously noted that this communication style is helpful for children diagnosed with ASD due to its repetitive nature, elongated vowels, greater pitch range, and shortened sentences that allow them to pay greater attention to the communication (Fernald, 1993; Werker & McLeod, 1989). Watson et al. (2010) also recorded the participants’ respiratory sinus arrhythmia (RSA). Previous researchers had reported that when RSA was higher in non-challenging, calm conditions, the more likely one was to experience greater sociability (Fox, 1989; Porges, Doussard-Roosevelt, Portales, & Suess, 1994).

Watson et al. (2010) found a positive association that existed longitudinally between RSA and the communication

skills of children with ASD, which suggests that the physiological regulation of attention to CDS can influence the continual development of communication skills for children diagnosed with ASD. Furthermore, the association of RSA during CDS exposure for children diagnosed with ASD suggests that they make physiological adjustments during the CDS conditions that are important in their processing of language; however, these results did not concur in nonsocial stimuli situations. With these findings, further testing could be conducted on children with ASD to determine when implementation of learning communication skills with technological tools would be best based on their physiological reactions to specific communication styles.

### **Conclusion**

With the rates of ASD diagnoses in children increasing rapidly, the demand for the improvement of interventions for difficulties with communication skills (a common symptom of ASD) is rapidly increasing as well. The focus in research to date has been on improving the teaching of communication skills to children diagnosed with ASD because the proper development of communication skills allows these children to in turn increase their behavioral and social skills. The little published research that exists about the use of technology in teaching

communication skills to children diagnosed with ASD has shown increases in the acquisition of those skills. Therefore, further research in the areas of teaching children diagnosed with ASD, and possibly other mental development disorders, must begin to involve technology. With the prevailing growth of these technological learning tools in social contexts like public school systems and homes, the availability for children diagnosed with ASD to learn communication skills more effectively increases with that growth. If these technological teaching mechanisms were implemented into the lives of all children diagnosed with ASD, their communication skills could develop more quickly and more effectively with rather than without these technological tools. And with significantly improved communication skills, improvements in social and behavioral skills appear to follow suit. Implementation of proven technology-based teaching tools for communication skills development may be the most effective approach to narrowing the gap between communication acting as a social barrier and communication becoming a social facilitator for children diagnosed with ASD.

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## Toilet Training: The Benefits of a Passive-Permissive Approach



By John Richardson

### Abstract

Toilet training is a process that every child must go through, but there is often confusion among parents and caregivers about which training method is best to use. Toilet training methods can usually be divided into two categories: systematic control and passive-permissiveness. Systematic control is a method based on operant conditioning and is intended to train children faster. Passive-permissive training is a child-centered approach that focuses on training at children's natural pace. This article is a review of the academic research associated with the two methods, and is a summary of the risks and benefits involved with each. Findings suggest that passive-permissive training is a better method than systematic control due to the risks associated with the latter. These risks include parental stress, child distress, and potential child abuse. Such risks are inadequately counterbalanced by the sole benefit of a slightly earlier training age. These conclusions provide

support for the use of passive-permissive training methods over systematic control methods.

*Keywords:* toilet training, child development, parenting style

In 2011, a mother—frustrated with her two-year-old daughter's failures at toilet training—glued the daughter's hands to the wall and severely beat her (Curry, 2012). This story is an extreme example of a parent who allowed her child's resistance to toilet training to push her beyond proper parenting. Although this example goes far beyond what most parents would do, there is still tension in many homes over children resisting toilet training or not training as quickly as expected. This tension is often caused by parents using a systematic control method to train their children. The use of a passive-permissive training method helps to avoid this tension and provides a better model for healthy training. In this article, I discuss some of the issues caused by the tension of systematic control training and how parents can avoid these issues by switching to a passive-permissive training method.

### **Toilet Training**

Toilet training is the process of learning to control one's bowel and bladder movements and learning to use a toilet or potty chair. In this section, I discuss why we toilet train children and when children are capable of being toilet trained.

### **Why Toilet Training is Important**

Developing bowel and bladder control are important factors necessary to function in society. Part of developing this control is toilet training. Toilet training is beneficial to a home in many ways. First, it reduces necessary care time for the parents, in which they are required to clean up their child's waste; this allows time for parents to focus on more direct bonding and care of their child. Second, it reduces costs. Paper diapers are expensive, and the cost can be disabling to low-income families. Cloth diapers are difficult to maintain, and many families don't have convenient access to washing machines to clean cloth diapers. Third, toilet training can benefit children by providing them with an added sense of independence, causing many children to feel proud of themselves once they have learned to control their bladder and bowel movements. Fourth, toilet training leads to an increase in sanitation by reducing exposure to waste-borne bacteria. Overall, toilet training is something that people in every society view as an important part of life and development.

### **When are Children Ready to Toilet Train?**

Although toilet training is an important step in child development, it cannot be achieved until the child is developmentally capable. There are numerous factors

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involved in a child's development towards toilet training. While much about these factors remains unknown, two major divisions of development have been found: physical readiness and cultural readiness.

**Physical readiness.** Brazelton (1962) proposed a model to explain child readiness in terms of ability to control the rectal sphincter and psychological ability to control impulses. Brazelton estimated that voluntary sphincter control usually developed between 12 and 15 months old, with psychological control starting around 18 months and peaking at 30 months old. Although there is some evidence to suggest that environmental factors may have a stronger influence on toileting readiness than physical development alone (Luxem & Christophersen, 1994), Brazelton's model has still retained popular acceptance in the scientific community as an appropriate guideline.

**Cultural readiness.** Although physical readiness to begin toilet training may happen at a somewhat pre-determined age, the age at which a child is culturally considered ready to toilet train can vary from household to household. Choby and George (2008) found that there is a marked disparity between cultural groups concerning when children are considered ready for toilet training. In their review, Choby and George state that cross-sectional studies

revealed that, on average, white families believed that training should start at 25.4 months old. Results from the same studies showed that the average parents of other races believed it should start at 19.4 months. A difference was also found between higher- and lower-income families, with the majority of higher-income families claiming 24 months to be the most appropriate age, and lower-income families claiming 18 months. Why such differences exist is not clear, but they may be a result of different economic and cultural requirements. Some cultural groups may focus more on early training based on practices handed down to them by parents, grandparents, and so forth. Lower income families may choose to toilet train their children earlier to alleviate the cost of diapers, or because they lack convenient facilities that are available to higher income families.

### Methods for Toilet Training

Beyond the broader cultural views on toilet training, there is still variability between individuals. Most parents or caretakers choose a specific training method to use according to what they think is best. There are numerous toilet training models available with varying degrees of complexity and control, but most could be divided into one of the two different models suggested by Luxem &

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Christophersen (1994): systematic control and passive-permissiveness.

### **Systematic Control**

Systematic control is a method of toilet training in which parents usually begin training their children early (often as soon as the child can sit upright without support). Once training begins, it follows a rigorous routine of punishment or reward. A few of the punishments commonly used are forcing children to clean up their own "accidents," forcing them to remain on the toilet until they defecate or urinate, and expressing disappointment to the children for lack of progress. The only benefit found to this method of training is that children do toilet train somewhat earlier than those who are trained with a passive-permissive style (Luxem & Christophersen, 1994).

This method of training is theoretically supported by behavioral models of learning, which assert that people learn through methods of reinforcing (rewarding) desirable behavior and punishing undesirable behavior. Systematic control methods of training try to use these behavioral models by providing controlled situations, wherein using the toilet is reinforced and "accidents" are punished. Systematic control was the most popular method of training in the early-

to mid-1900s, when behaviorism was the most popular psychological model (Luxem & Christophersen, 1994).

Although this model of training has slowly faded in popularity, replaced by passive-permissive models, there are still many parents today who practice these types of methods. Many who do try a systematic control method do so because of claims made in certain toilet training books, promising fast, easy results. One popular example is Arzin's *Toilet Training in Less than a Day* (Arzin, 1976), which teaches a systematic control method of toilet training designed to work within only a few hours of training. More will be discussed on the results of this training method later in this paper.

### **Passive-Permissiveness**

Passive-permissiveness is a method of toilet training in which the parents commence training at the child's pace. Usually training does not begin until the child first shows an interest in the toilet (Brazelton, 1962). Such interest is usually characterized by the child talking about the toilet or noticing that mom, dad, or others use it. When training does begin, it is based on a process of gradually introducing the child to using the toilet. Rewards such as praise, increased privileges, or candy are often employed in this method of training, but rarely does it include punishments for a child's



“accidents.” One benefit of this training method—over that of systematic control—is that it is a less stressful process for both the parents and the children because of its less demanding nature. Another benefit is that false expectations are less likely, due to the focus on the child’s rate of development rather than on a schedule.

Passive-permissiveness was largely supported in the 1940s by psychodynamic theory. This theory claims that toilet training is a major part of a child’s personality development, determining much of their adult personality. According to this theory, it is healthiest to allow children to develop at their own pace. Although psychodynamic theory has passed out of general popularity and there has been no evidence to show any major psychological consequences of hastening children’s toilet training, the passive-permissive style has continued in popularity. Much of this popularity can be attributed to men like Spock or Brazelton, who wrote articles and books claiming the benefits of child-centered approaches to toilet training (Luxem & Christophersen, 1994).

Because of these various factors, the general trend since the 1940s has been a movement toward the passive-permissive method, with 72% of pediatricians supporting this type of training (Polaha, Warzak, & Dittmer-McMahon,

2002). Even though the current majority focuses on passive-permissive toilet training methods, there is some evidence to suggest that there may be many parents who will switch to methods of systematic control as cultural requirements change. One specific aspect of culture that may push parents towards this change is the increase in daycare usage. Many daycares require children to be toilet trained before admittance, based on principles of public sanitation. This places pressure on many working parents to attempt to toilet train their children as quickly as possible because of their need to leave their children in a daycare while they are away at work. Because systematic control methods promise faster training, many parents may try them as an alternative to passive-permissive methods.

### **Risks of Systematic Control**

There is a variety of research available on various parenting styles and their effects on children, but there is a general lack of empirical research studying the psychological risks or benefits of one toilet training method versus another. Due to this lack of research, little can be said about the direct consequences of one training method over another, but there may be indirect consequences caused by the difficulties associated with systematic control methods.

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### Emotional Distress

One specific consequence of systematic control training methods could be parental stress. The method taught in the book *Toilet Training in Less than a Day* (mentioned above) was originally designed and tested by Foxx and Arzin (1973). In their study of this fast-paced training method, they concluded that children could be trained within an average of four hours and with relatively little difficulty. Unfortunately, these results failed to be entirely representative of real-life issues. Although some do have success in training with this method, there are others who have experienced problems with it. Matson (1975), in a case study, found that several mothers who tried applying this technique were met with resistance from their children. Such resistance included crying, screaming, hitting, running away, and other forms of tantrums. Matson also reported that there were “negative emotional outbreaks” from mothers as well as children. Another study found that only one in five mothers was able to successfully train their children with this method. Not only were they unsuccessful, but all of the mothers in the study reported child resistance to the training method and reported their own discomfort caused by this resistance (Luxem & Christophersen, 1994). These findings suggest that, despite the success initially reported by this

training method, in real-life settings such training can lead to resistance and emotional distress.

### Stress and Parenting Styles

The fits, tantrums, and negative emotions associated with resistance to systematic control toilet training often lead to a build-up of stress for the parent providing the training. Dunning and Giallo (2012), while controlling for gender, socio-economic status, and other demographics, found that parenting stress mediated the effects of fatigue on their parenting self-efficacy. This means that when parents are stressed and fatigued in parenting, their belief in their own ability as parents diminishes. As parents’ self-efficacy diminishes, they may seek harsher styles of parenting to make up for their perceived ineffectiveness or they may give up trying and instead switch to a neglectful or overly passive parenting style.

Most parenting styles can be divided into three main categories: permissive, authoritarian, and authoritative (Rinaldi & Howe, 2012). Permissive parenting styles are when parents are warm and responsive, but under-demanding. Authoritarian parenting is the opposite: distant and unresponsive, but also demanding. Authoritative parenting is a balance between the two, being both responsive and demanding to the children. Authoritative

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parenting styles are associated with better child outcomes. Conversely, both permissive and authoritarian parenting styles are associated with poorer child outcomes. Specifically, the negative effects of the over-controlling authoritarian parenting styles have been researched; these effects include higher child anxiety (Affrunti & Ginsburg, 2012), negative emotionality, and externalizing problems (Lipscomb et al., 2012). Although many parents may generally practice a balanced authoritative parenting style, the resistance and stress caused by systematic control training may force parents into more authoritarian parenting behaviors.

### Abuse

Perhaps the most serious risk associated with systematic control training methods is that of abuse (Schmitt, 1987). The story in the introduction of this paper is one example of abuse triggered by a parent trying to control toilet training, but this was not an isolated incident. In Florida alone, four children were killed within a seven-month period because of toilet training issues (Quigley, 1999). Aside from these major incidents, abuse can also happen in cases that are never reported to the news. Such abuse can take physical forms such as beatings, or psychological forms such as yelling at or shaming children.

Toilet Training

Because toilet training is an aspect of raising children that adds a particular risk for abuse, Schmitt (1987) recommended that parents who are at high risk for abusive behavior should avoid even initiating toilet training until their children are 2 ½ to 3 years old. When parents do initiate toilet training, Schmitt suggested that they should make training fun for their children, and that they should not practice behaviors such as forcing children to remain on the “potty.” Schmitt also cautioned that children should never be shamed or punished for “accidents”; such pressure on children can turn them against toilet training causing them to be even less cooperative and further increasing the risk of abuse. Essentially, Schmitt is recommending a passive-permissive training method to avoid potential abuse.

### Alternative Perspectives

Although there are many potential benefits to toilet training with a passive-permissive method rather than a systematic control method, there are still many who support the latter as a better choice. The main argument against following a passive-permissive training method is that systematic control methods usually toilet-train children faster (Luxem & Christophersen, 1994). Because there is social pressure on parents to have their children trained at earlier ages, many may feel that the difficulties associated

with the more controlling training method may be worth the cost. However, Blum, Taubman, and Nemeth (2003) found evidence suggesting that systematic control methods may not train children any earlier. Specifically, these researchers found a significant negative correlation between the age of initiating toilet training and the time it takes for the child to complete training. This negative correlation showed that initiation of toilet training before the age of 27 months resulted in very little benefit to overall age of completion. With most children completing toilet training between the ages of 24-36 months old regardless of training method, the potential benefit of a systematic control training method would only amount to a matter of a few months difference. Because of the resistance and stress associated with this type of training, it may not be worth such a small gain.

Some may claim that the stress associated with changing diapers and cleaning a child after “accidents” for a few more months would be more stressful than a short period of resistance the child may show against training. Although there may be some validity to this argument, research conducted by Tervo (2012) found that motor deficits (the ability to control physical movements and bodily functions) in children caused less stress to mothers than did behavioral and social deficits. This suggests that the motor deficit of

delayed toilet training and the extra work associated with it may be outweighed by the potential behavioral issues caused by a systematic control training method.

### Discussion

Many parents struggle with toilet training their children. Such difficulties may arise from parents using systematic control training methods. Child resistance—crying, disobeying, throwing tantrums—to this training method can cause emotional distress to parents and children, undue stress to parents, and potentially lead to child abuse. Such difficulties in training can be largely reduced by switching to a passive-permissive training method, which focuses on training at the child’s own pace. Findings suggest that not only are passive-permissive methods as effective in training children as systematic control methods are, but that they are also a healthier choice for both child and parent.

### Implications and Conclusions

Many parents are left wondering how they should toilet train their children. The research findings suggest that the best course of action for parents could be one of a passive-permissive training method. If indeed this method of toilet training provides a healthier and safer environment for parents and children, then it would be a clear choice for parents who will soon begin toilet training a child. These

findings also suggest that parents who are already in the process of toilet training their children using a systematic control method may benefit from switching to a passive-permissive method.

There is much room for further research into this topic. One particular area of future research would be direct comparison between the two toilet training methods. Such research could measure the levels of resistance offered by children and the levels of stress reported by parents and compare them across the two training methods. Other research should also be done to study the changes in the general well-being of parents and children that occur during the toilet training experience and to compare these results between training methods to see if there are any lasting benefits to one or the other.

With so many varying methods available for toilet training children and so many books and physicians claiming the merits of one method or another, parents may find themselves at a loss as to what they should do. However, with the support of research found in this review, parents can use this as a simple guide for narrowing down the possibilities, which will hopefully lead them to a choice that is both effective in training and emotionally positive for them and their children.

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## The Importance of Peer-to-Peer Grooming Among Non-human Primates



Jayde Shackett

### Abstract

Among non-human primates, grooming is a common practice. Research has shown that there are many underlying reasons why non-human primates groom. It is not completely altruistic or selfish but is often a resource traded for food, mating access, protection, and other social benefits. It can be used to achieve higher social rank as the bonds formed from grooming help primates climb the social ladder. There are other advantages of grooming, which include increased social bonding, mating access, and offspring support.

*Keywords:* grooming, non-human primates, social ranking, infant survival, protection.

Grooming is one of the most common and crucial social behaviors in almost all non-human primates, and it has been a topic of debate. At first, onlookers assumed it occurred solely because a hungry animal was looking for food in its peer's hair (Carne, Wiper, & Semple, 2011). Other researchers viewed grooming as altruistic, because there appeared to be personal costs to the groomer and benefits to the groomed peer.

Research by Kanngiesser, Sueur, Riedl, Grossman, and Call (2011) found that grooming is exchanged for reciprocal grooming and many commodities. Their research suggested that peer-to-peer grooming is not altruism or selfishness but a calculated gesture. It eases social stress and may bring troops and individuals closer, thereby strengthening social bonds. It is also a factor in social rank (Kanngiesser et al., 2011). In addition, grooming promotes increased odds of survival for offspring, and protection provided by the grooming partner.

### Social Rank

Fruteau, Lemoine, Hellard, van Damme, and Noë (2011) investigated the use of grooming as an “inexpensive currency” among primates. They observed grooming sessions among sooty mangabeys and vervet monkeys at times when there was no apparent reciprocation or exchange

for commodities. Most females had frequent grooming partners. Regular grooming over a long period of time with the same preferred partners yielded stronger bonds, as measured by the amount of time each grooming pair spent together. The partner choice in these relationships was partially explained by the ranking system among those involved. Females that mutually groomed had similar social rankings. As they moved up in rank, females usually groomed those of similar rank as a means of establishing that rank as their own. Within the rank, the females mostly traded grooming for a chance to be groomed. Their mutual grooming was rewarded by a stable position among the others. This was evident in both species.

Females' ranks were also correlated with the amount of grooming they performed. Lower-ranking females needed to groom and be groomed for a longer period of time in order to move up in rank. Moreover, lower-ranking females groomed their partners longer than they were groomed in return (Fruteau et al., 2011). Rank dynamics and correlated grooming vary across primate species. In some, it is acceptable for either dominant or subordinate members to initiate a grooming session. Within others, however, most interactions are initiated by a lower-ranking member in an attempt to gain favor. For example, among the vervets,

lower-ranking females initiated 262 of 323 grooming sessions, a significantly higher proportion than that of their higher-ranking partners (Fruteau et al., 2011). Carne et al. (2011) studied peer-to-peer grooming in female Barbary macaques. Individuals groomed females with a higher rank than themselves more than they groomed females with a lower rank.

Male chimpanzees have demonstrated similar grooming relations. Mitani (2009) measured the content, quality, relative frequency, and patterning of grooming interactions within male pairs. The more equitably and frequently they groomed each other, the stronger the bond between them became. Male pairs were found more likely than female pairs to maintain these social bonds for at least one year, and 68% of the bonds remained stable during that period.

### Infant Survival

Some primates groom one another and thereby increase the odds of survival for their infants. In a study on female baboons' bond-forming, Silk, Alberts, and Altmann (2003) found that when females were more socially integrated, their infants were more likely to survive. The extent of an individual's social integration was determined using a composite sociality index made up of three separate



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measures: proximity to other adults, being groomed by other adults, and grooming other adults. Females with higher scores had offspring with a higher survival rate than females with low scores. Female baboons strive to maintain connections with other baboons in order to ensure their offspring's survival and success (Silk, 2003). This experiment showed one of the driving forces behind social relationships and the power these social bonds have on offspring. Social bonds are largely formed through the equitable and frequent grooming pattern between two similarly ranked primates. Grooming is used more frequently among females as a ladder to gaining higher sociality, which directly influences survival rate in their offspring.

### Protection

The social bonds formed through peer-to-peer grooming also protect the individuals directly involved in the exchange. Hemelrijk (1994) found that long-tailed macaque females were more likely to support others after being recently groomed by them, where support was defined as one animal defending another during an attack. Individual females were given the opportunity to support their peers under three separate conditions: after grooming the other, after being groomed by the other, and without any prior

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grooming. Levels of support were significantly higher in the first two conditions than in the third.

In a study of female Japanese macaques, Schino, di Sorrentino, and Tiddi (2007) found that they supported those macaques that returned their support. Often these were those that had groomed them most. Such support was a critical form of protection during feeding, mating, and other critical activities. Japanese macaques are also more capable of defending themselves with the support of their grooming partners. It is still debated whether biological relatedness also plays a role in the exchange of grooming for social support (Carne, 2011).

Capuchin monkeys have been observed to exchange grooming in order to eat without fear of being attacked (Tiddi, Aureli, di Sorrentino, Jansen, & Schino, 2011). This implies a "what's mine is yours" relation should a female encounter hostility while feeding. Sharing food and infant care are more likely to occur. The high levels of tolerance demonstrated among capuchin monkeys were significantly associated with high levels of grooming, regardless of kinship or sex (Tiddi, 2011). Similarly, rhesus macaques exchange grooming for peer protection at drinking basins (Carne et al., 2011).

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### Conclusion

Recent research has brought a better understanding of the causes for peer-to-peer grooming in non-human primates. Grooming as a valuable and exchangeable commodity is now a widely accepted theory. Grooming relations can lead to higher social ranking, increased odds of survival for offspring, and protection. It has been shown that social rank is one of the top motivations for grooming and is important for every aspect of a primate's life. Secondary to this motivation is the passing down of one's genes, a drive that every primate is born with. Lastly, grooming is also used as a means of obtaining protection. Without the ability to groom one another, the aforementioned necessities would not be attainable for non-human primates.

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## Effects of Football-related Concussions on Cognitive Function



By Danny Tindall

### Abstract

In literature review, I examine the current research on football-related concussions and their effects on cognitive performance. A concussion is defined as a blow to the head which results in injury to the brain. Concussions are often difficult to diagnose as they do not leave any radiological variation that can be measured via MRI. Concussions were first observed in boxing during the 1920s, but research on concussions has been slow to gain momentum until recently. As empirical research has gained prominence, both short- and long-term effects of concussions have come to light. Significant cognitive effects of concussions include depression, links to neurodegenerative diseases, memory impairment, and decreases in cerebral blood flow (Didehbani, Cullum, Mansinghani, Conover, & Hart, 2013; Guskiewicz et al., 2007; Maugans, Farley, Altaye, Leach, & Cecil, 2012). The improvements being made in sports to help

fix these problems include changing rules for greater safety, improved concussion assessment techniques, and better safety equipment (Halpin, 2013; Lear & Hoang, 2012; Linendoll, 2013). The potential impacts of this concussion research on football are still largely unknown, but considering the popularity of the sport, the impacts will likely be insignificant.

*Keywords:* concussion, football, TBI, brain injury

A concussion is a type of traumatic brain injury (TBI). They occur when a bump or blow to the head is received and they can affect the way the brain functions. Concussions can be difficult to diagnose, as no radiological variations (such as those that would be seen in an MRI) are typically found in subjects who have sustained a concussion (McCrea, Perrine, Niogi, & Hartl, 2013; Mitka, 2007). Because of this lack of measurable damage, concussions are more difficult to define than most other types of brain injury (McCrea et al., 2013). The symptoms of concussions are varied, but some of the most common are brief retrograde amnesia (difficulty remembering events immediately prior to the injury), posttraumatic amnesia (difficulty recalling events immediately after the injury), difficulty maintaining balance, and difficulty focusing the eyes (Lau, Kontos, Collins, Mucha, & Lovell, 2011; McCrea et al., 2013). Concussions can also include loss of consciousness; however, even when a person remains conscious, the concussion may still be damaging. Additionally, studies have shown that athletes who have suffered one concussion are more likely to suffer another in the future; the greatest period of risk being within 60 days of the first incident (McCrea et al., 2013). This increased risk is an important factor when considering recovery times for athletes who

receive concussions. However, like most injuries, the severity of concussions is something that doctors and psychologists learned over a long period of time, rather than all at once.

Concussion-like symptoms were first observed in professional boxers in 1928 by Harrison Martland (McCrary, 2011). Martland observed a “punch-drunk” state when boxers had suffered severe blows to the head. These boxers seemed to be confused about where they were, they had difficulty balancing, and their movements were jerky and hesitant (McCrary, 2011). These symptoms later became known as *dementia pugilistica*, a type of chronic traumatic encephalopathy (CTE). CTEs are currently suspected to be a direct result of multiple concussions; however, a direct causal relationship has not yet been determined (Tremblay et al., 2013). In recent years, these symptoms were noticed in other sports, especially those with a high level of physical contact. Experts estimate that 1.6 – 3.8 million Americans suffer a mild TBI per year, with up to 20–30% of these occurring as a direct result of sports (Lincoln et al., 2011; McCrea et al., 2013). Unfortunately, difficulties arise when trying to obtain a better estimation, as many concussive events go unreported due to the work ethic of many athletes and a desire to continue play in a

competitive atmosphere (Mitka, 2007). Athletics provide such a notoriously competitive environment that it can be difficult for athletes to report an injury that could affect their playing career. Players may even knowingly risk long-term damage because of the allure of multi-million dollar professional contracts in the National Football League (NFL).

Because of the dangers of concussions, both reported and unreported, efforts have been made to reduce the number of concussions suffered by athletes. Many sports leagues have implemented measures for diagnosis and assessment to lower concussion risks for their athletes. The usefulness of these measures is still under discussion, and currently no universally accepted system exists (Schneiders, Sullivan, Gray, Hammond-Tooke, & McCrary, 2010). The most commonly used system is the SCAT-2, or Sport-Concussion Assessment Tool-2, which has been adopted by most professional sports leagues and many high school teams (McCrea et al., 2013). This system is actually a conglomeration of several other systems that have proven effective over the years, such as the Glasgow Coma Scale, the Standardized Assessment of Concussion and the Balance Error Scoring System (McCrea et al., 2013). Because it contains so many different analysis tools, the SCAT-2 test is

considered to be the most comprehensive of the common concussion tests and is continually being revised and improved (McCrea, et al., 2013). While the SCAT-2 is accepted by most athletic programs, there are still many other viable and effective concussion assessment tools being used.

The SCAT-2 test not only helps diagnose concussions, but also helps doctors and coaches estimate the potential damage of those concussions. The effects of TBIs vary greatly with severity of the blow, as well as the number of concussive events an athlete has experienced (DeBeaumont, Henry, & Gosselin, 2012). Athletes are able to recover rather quickly from a single concussion, but begin to risk more permanent damage after sustaining multiple concussions (DeBeaumont et al., 2012). Unsurprisingly, certain sports have a higher rate of concussions than others, with football accounting for up to 63% of sports-related concussions (DeBeaumont et al., 2012; Mitka, 2007). With such potential danger to athletes, further research must be conducted to increase our knowledge of concussions.

While the long-term effects of concussions are still being researched, the medical community universally agrees that these injuries can cause permanent brain damage. This damage is especially apparent in an athlete's later years

(Tremblay et al., 2013). Sports programs around the nation have been attempting to minimize the danger of concussions for years, though the awareness of these hazards has been increasing only recently (DeBeaumont et al., 2012; McCrea et al., 2013; McCrory, 2011). It was not until 2009 that the NFL began requiring players to be cleared by a physician before returning to play after a concussion, and many other sports associations were similarly slow to react (Didehbani et al., 2013). The effects of concussions are both very real and very serious. They lead to long-term cognitive deficiencies, which are more visible as athletes increase in age and the number of concussions suffered (Guskiewicz et al., 2007; McCrea et al., 2013). These deficiencies can include depression, greater risks of neurodegenerative diseases such as Alzheimer's, and memory impairment, a contributing factor of which may be reduced blood flow to the brain (Didehbani et al., 2013; Guskiewicz et al., 2007; Maugans, Farley, Altaye, Leach, & Cecil, 2012). This decreased blood flow to the brain is thought to be one of the primary contributors to many of the effects of concussions.

As researchers began to see how severely detrimental concussions can be, they also began to look at how they can affect the brain in the long-term. Information from the Center for Disease Control and Prevention (CDC) shows that



in the year 2000, medical costs of TBIs in America were nearly \$60 billion (as cited in McCrea et al., 2013). Concussions account for a significant 75% of this total cost (McCrea et al., 2013). The cost is greater when considering the health concerns of TBI victims. Until the last 5–10 years, most research on the long-term effects of concussions focused on the most severe cases, while overlooking the potential damage of multiple, mild concussions (Guskiewicz et al., 2007). Awareness of these mild concussions is increasing, and more medical researchers continue to conduct studies that shed greater light on the subject. Additionally, research has been done which shows that after receiving a mild concussion, 80–90% of athletes are able to recover and be symptom-free after a period of just 10–14 days (Didehbani et al., 2013; McCrea et al., 2013). However, the recovery period is often prolonged when the victim is younger (early teens) or when the victim has sustained multiple concussions. This “recovery” merely includes the visible, manifest symptoms of concussions, and not the energy-deprived state of the brain discussed later. In this review I will first treat the cognitive deficiencies linked to concussion, and then the improvements that have been made to help address these problems.

### Cognitive Effects

Concussions have been linked to several prominent cognitive problems. Additional studies are discovering more regarding these effects, their severity, and some potentially linked problems. The cognitive effects I address in this literature review are depression, links to neurodegenerative diseases, memory impairment, and decreased cerebral blood flow.

### Depression

Depression is one of the most well-documented and researched long-term effects of concussions. These symptoms first came to light after the suicide of several prominent, retired athletes (Didehbani et al., 2013). Research conducted in 2007 showed that retired NFL players who have sustained three or more concussions are three times more likely to suffer from depression than athletes who have never had a concussion, while those who have had one or two concussions were 1.5 times more likely to suffer from depression (Guskiewicz et al., 2007). The researchers also suggested that this trend is not specific to the NFL, but can be applied across all sports where concussions are a risk. Because these symptoms have been discovered in retired athletes, it is possible that many current athletes continue to play after receiving concussions because they may not

realize the severity of the concussions' consequences in their later quality of life. Even with education regarding the severity of concussions, players may decide that the money and fame that the NFL promises is worth the risk.

Studies have shown that brief periods of depression can follow a concussion, but the severity of the depression is nowhere near the level that has been measured later in life (Guskiewicz et al., 2007). The diagnosis of depression is serious enough on its own, but even more serious is that 16.7% of the athletes surveyed by Didehbani et al. (2013) expressed the presence of suicidal thoughts and desires. This is a substantial deviation from the norm—research on suicide in the general population suggests that about 3.7% of the adult U.S. population suffers from suicidal ideation (Crosby et al., 2011). Researchers postulate that these depressive symptoms are due to the lesions that can be sustained by the brain from severe (or multiple mild) concussions (Guskiewicz et al., 2007). While depression and suicidal thoughts are a serious cause for alarm, researchers have also studied the potential link of these symptoms to other serious diseases.

### **Neurodegenerative Disease**

Studies have also shown that TBIs are a potential risk factor for the manifestation of several neurodegenerative

disorders, which include Alzheimer's disease and Parkinson's disease (Guskiewicz et al., 2007). Clinically diagnosed depression is not common among Alzheimer's patients; however, having a depressed mood is common preceding the onset of Alzheimer's. Additionally, researchers of one study believe that concussions may not be a cause of these disorders, but simply cause earlier or more severe manifestations of them (Guskiewicz et al., 2007). While the links between concussions and neurodegenerative disease have been approached, little additional research has been done.

### **Memory Impairment**

Depression was one of the first discovered long-term effects of TBI, but many new cognitive dysfunctions have been uncovered or better understood within the last 10 years of research. Guskiewicz et al. (2007), in addition to finding a strong correlation between concussions and depression, also found that many former football players suffer mild-to-severe memory impairment in their later lives. The study focused on 2552 former football players, with 1513 responding to the questionnaire on concussion history. Of those 1513 responses, 58% of players reported having sustained one or two concussions, and 34% reported having three or more concussions. Of the players with one or two

concussions, 11% (102 players) reported significant memory loss, and of those with three or more concussions, 31% (185 players) reported memory problems. While this data is based on the players' perception of their injuries, the relationship it implies is a cause for concern. Research in this area of memory loss is continually being done, though much of this research is performed outside the realm of former athletes.

### Decreased Cerebral Blood Flow

A recent study published in the American Academy of Pediatrics' journal shows a possible cause of these cognitive issues (Maugans et al., 2012). Children aged 11 to 15 years were studied at various stages after receiving a concussion and the results showed a decrease in volume of cerebral blood flow after sustaining a concussion (Heger, 2008; Maugans et al., 2012). The patients were studied within 72 hours of a concussion, 14 days after, and 30 days or more after the blow (Maugans et al., 2012). The control, or normal amount of blood flow to the brain, is 48 mL per minute, while those who have suffered a concussion within 72 hours decreased to 38 mL of blood flow per minute, without any discernible damage visible to an MRI (Maugans et al., 2012). This is a decrease of over 20% in the amount of blood the brain is receiving.

These effects are not permanent. The study shows that 27% of the patients were recovering toward the normal values after 14 days, and 64% after 30 days (Maugans et al., 2012). However, the study only included a very small sample size (N=9) and was conducted on children in a very specific age group. Additional studies in this category would be beneficial in discovering whether these effects differ based on age of the victims or their stage of mental development. Are the effects greater on a child whose brain has not fully developed? Or is it better if the concussion is suffered by a child who can recover more quickly than someone older? Also, are these negative effects of concussions caused by this decreased blood flow, or are they caused by additional, unknown damage? These questions could be answered with further research and help increase understanding of the effects of concussions on cerebral blood flow.

### Improvements

As researchers continue to learn more about how concussions affect the brain, sports programs and companies continue to try to prevent concussive injury. Various methods exist to help reduce the number of concussions suffered by athletes. The most prominent of these ways include the implementation of safety-oriented rules,

construction of adequate concussion assessment tools, and creation of better safety equipment.

### Rule Changes

While safety standards have been implemented slowly over the years, important improvements have been made. In 2013, the NCAA Football Rules Committee implemented a new rule in efforts to help improve safety of the players. The rule stipulates ejection of players who lead a tackle with their heads against a defenseless player (Halpin, 2013). This rule has been put in place in hopes of reducing the number of injuries of all kinds, but especially head injuries (Halpin, 2013). While it has sparked a large amount of controversy, the rule is well-intended and an important step towards making a highly dangerous sport slightly less so. Staples (2013), a well-known sports columnist, believes that the Rules Committee has not just the opportunity, but the obligation to reform the sport, regardless of the controversy it may spark. Staples (2013) goes so far as to say that the sport needs saving from itself, or people will stop participating in it. Additionally, other rule changes have been made, including moving kickoffs up five yards in efforts to reduce the number of statistically dangerous kickoff returns.

### Assessment Tools

When the rules that have been put into place to help prevent TBIs fail and an athlete suffers a concussion, guidelines exist that programs must follow before allowing the player to return. The first true system of guidelines was put in place in 1997 by the American Academy of Neurology (Lear & Hoang, 2012). Unfortunately, every case and every player's brain are different, and these one-size-fits-all style guidelines are now considered obsolete; a more individualized approach is needed (Lear & Hoang, 2012).

Today, the most commonly used system is the SCAT-2 system, which uses several different grading systems to address the needs of each individual athlete (McCrea et al., 2013). Coaches and team medical staff use these guidelines to diagnose their players and assess how long their athlete will be unable to play. The length of time a player must wait before returning to play is something that is still under debate by many medical professionals. Unsurprisingly, it too falls under the category of individual adaptation for each player and each case.

Research done by Lear & Hoang (2012) has made strides in helping coaches properly estimate and address the needs of each player's recovery. The reason returning to play is such an important issue to address is the susceptibility of

a concussed player to receive a second concussion. Two primary reasons have been postulated as to why someone who has received a concussion is more likely to sustain another (Heger, 2008). Some of the effects of a concussion are slower reaction times and decreased attention ability (caused by tiny tears in the white matter of the brain), making fast-paced sports much more dangerous due to the player's inability to properly react. The second reason is related to brain chemistry. The sudden movement and acceleration of the brain within the cranium causes the brain's cells to fire, which can use a large amount of energy. In order to replenish the brain's energy supply, the brain remains very active after a concussion. Normally the brain would restore the lost nutrients quickly, but because of the decreased blood flow to the brain, it can leave the brain in this debilitated state for up to an entire year, depending on the severity of the concussion (Heger, 2008; Maugans et al., 2012).

### **Safety Equipment**

Besides simply changing the rules, improvements have been made in the equipment used as well. Riddell, a prominent sports equipment manufacturer, has developed a sensor that can be placed inside of football helmets. The sensor is a lining within the helmet that measures several

different forces applied to the helmet – linear force, rotational force, and impact duration and location. This information is sent wirelessly to a handheld unit on the sidelines, and will send an alert on significant hits. While Riddell has stated that this is not a true diagnostic tool for concussions, this new technology is meant to be an extra precaution and help coaches know when their player receives a potentially damaging hit (Linendoll, 2013). This system may be a bit expensive, especially for high school programs with small budgets, but Riddell is working on making this technology cheaper and more available for any program that wants it (Linendoll, 2013). While awareness of the danger of concussions has been slowly accepted among sports associations, progress is being made in making sports safer for the players. Players can never be fully protected from danger, but rules and safety gear can help prevent damage in an industry that is, at its heart, merely entertainment.

### **Conclusion**

While many improvements are being made to reduce the number of concussions football players receive, many athletes are still suffering from these injuries. Experts estimate that sports of all levels cause anywhere from 300,000 to 1,000,000 concussions per year in the United

States (Guskiewicz et al., 2007; Lear & Hoang, 2012). Concussions have both short-term and long-term effects, which are more apparent and severe depending on the number of concussions suffered. These effects are still being researched and studied, but some of the most well-documented of these effects are depression and memory impairment. Along with these, there have been correlations between concussions and significant neurodegenerative diseases such as Alzheimer's and Parkinson's disease. A potential cause of these effects could be the diminished blood flow the brain receives after a concussion is sustained.

The understanding of concussions and their effects is becoming increasingly public and well-known, which has convinced the sports industry to begin to address these dangers. Every year, rules are being implemented in popular sports to increase the safety of athletes. Sports equipment manufacturers are pioneering new safety equipment for the players to wear. Public understanding of the dangers of sports is increasing. While all of these are important steps forward, it remains to be seen where these changes will lead the industry.

It is important to continue to research and learn more about the effects of concussions. Players, coaches, and programs need to continue to seek ways to protect their

players. In all likelihood, these improvements will not substantially change the integrity of the sports, at least within the foreseeable future. Fans of these sports can rest assured they will still have the entertainment they love, at a decreased risk to the players who provide that entertainment. As safety equipment and implementations improve, parents and children will still see football as a viable recreational pursuit. As these children get older, the sport gets rougher—but so will the prestige of being a football player. The culture that surrounds football is immense and powerful — even at the high school level, good football players are celebrated and revered. As those players continue to play in college and professional leagues, the possibility for fame increases. As long as this culture of player adulation remains, so will football, and players will continue to risk long-term injury and damage in the pursuit of the fame and fortune that playing in the NFL can bring.

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"It is not a  
question of  
starting.  
The start has  
been made.  
It's a question  
of what's to be  
done from now on."