

EXAMINING THE HUMOR STYLES AND POSITIVE AGING IN OLDER ADULTS AND  
THE ROLE OF COGNITIVE FUNCTIONING

By  
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## Abstract

The current study examines how humor use may relate to positive aging in older adults. In particular, it is proposed that the four different humor styles (self-enhancing, affiliative, self-defeating, and aggressive humor) may be differentially associated with positive aging. The current study also suggests that level of cognitive functioning may play a role in this relationship. Accordingly, it is proposed that older adults with intact cognitive functioning will use more positive styles of humor and experience more positive aging than those with impaired cognitive functioning. Twenty-four older adults from Northern Ontario communities completed self-report measures pertaining to the four humor styles, positive aging, and self-esteem, as well as completed a brief assessment of cognitive functioning. Significant differences were found between intact and impaired cognitive functioning older adults on use of self-defeating humor. Additional exploratory analyses are further discussed. Limitations of the current study and future directions are considered.

Keywords: humor styles; positive aging; older adults

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# CHAPTER I

## Introduction

Humor is a concept that is understood universally — visually through a smile or watching a funny movie, or audibly through hearing someone laugh or telling a joke. It can sometimes be hard to recall a day where humor did not play a part. The undeniable euphoric feeling that can accompany humor, makes it one of the most unique, defining, and important human qualities (Foot & McCreddie, 2006).

Much research has shown the benefits of humor on mental and physical health (e.g., Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003; Ruch, Rodden, & Proyer, 2011). Humor has been associated with several beneficial mental and physical factors such as increased self-esteem, successfully coping with stress, improved psychological well-being, increased resistance to diseases such as cancer, and improved quality of social support (Martin et al., 2003; Williams, 2001; Schwartz, 2007; Ruch et al., 2011). Despite all the demonstrated usefulness of humor research and its potential applications, it is not until recently that it has become a focus of positive psychology research (Reff, 2007). Furthermore, much of the research has ranged in focus from children to adults, and has largely neglected the exploration of humor regarding the elderly population and the effect on the aging process (Ruch, Proyer, & Weber, 2010).

Thus, the purpose of the current study is to examine the potential role that humor, specifically, the humor styles (Martin et al., 2003), play in the positive aging process of older adults. Past research regarding humor and the humor styles will first be considered, followed by a presentation of positive aging and cognitive decline. Past research on humor, aging, and cognitive functioning will also be discussed. Prospective relationships regarding humor and positive aging are articulated in the form of several hypotheses for the current study.

## **Humor and the Humor Styles**

One of the difficulties of humor research is finding a universal definition of what exactly humor is (Sands, 1984). The most common and easiest ways to measure humor is via the presence of laughter (e.g. Skevington & White, 1998). The benefits of laughter have been studied extensively (e.g., Bonfiglioli & Bitti, 2012; Martin, 2001; Skevington & White, 1998). On the social level, laughter gravitates people towards each other in a feeling of togetherness and appears to be a desirable interpersonal trait when developing relationships (Bonfigliolo & Bitti, 2012). The immediate personal pleasure and mirth experienced with laughter accompanies the improved social bond that occurs with the individuals on is experiencing the laughter with (Kashdan, Yarbrow, McKnight, & Nezlek, 2014). The benefits of laughter are not limited to the single social interaction they are confined within. Recent studies have shown that laughter in social interactions also predicts the success of future social interactions, and improved social functioning (e.g., Bonanno, Moskowitz, Papa, & Folkman, 2005; Kashdan et al., 2014).

Furthermore, laughter induces physiological changes in the body which can lead to improved physical health (e.g., Berk, 2001; Martin, 2001). Laughter can alter the levels of specific hormones circulating through the body. An increase in catecholamine levels has been shown to increase mental functioning in individuals (Fry, 1994). Additionally, decreases in circulating serum cortisol, epinephrine, and growth hormone levels have been linked to the stress relieving effects of laughter. Laughter has also been shown to improve respiration and can provide a form of exercise of the face, chest, and abdominal muscles (Berk, 2001).

Laughter alone clearly has several benefits that can be taken advantage of if implemented properly into a clinical setting. Unfortunately, the measure of laughter has proved to be a far more complex issue that goes beyond its presence (or lack thereof). First of all, limited studies

take into consideration the context of laughter. ‘Laughing at’ and ‘laughing with’ present two very different contexts, both of which contain laughter in them. ‘Laughing at’ someone may be in a derogatory way, which may not be beneficial to all those involved. However, there are situations where ‘laughing at’ may be interpreted as a bonding activity between friends poking fun at each other. ‘Laughing with’ suffers the same fate, as the context of the laughter is ambiguous. Furthermore, there may be social pressures to laughing or not laughing at something (e.g., a dirty joke) that could influence the presence of laughter. If a dirty joke is made in a sensitive situation, just because someone finds it humorous, does not mean they will laugh. Similarly, a situation may arise where someone does not find something funny but will laugh anyways to avoid any potential uncomfortable social situations. Moreover, the positive physiological benefits of laughter do not always have to be accompanied by humor to take effect (Martin, 2001). Laughter appears to be an inseparable by-product of the presence of humor that gives rise to many of the social and physiological benefits associated with humor.

Despite laughter being a hallmark feature of humor, and possessing several of the benefits associated with humor, it is not a completely reliable measure to evaluate humor. Studies (e.g., Deckers & Ruch, 1992; Martin et al., 2003; Williams, 2001) have combated this challenge of defining humor by examining a variety of measures to assess humor.

Moran, Rain, Page-Gould, and Mar (2014) broke down (a sense of) humor into essential components — humor appreciation and humor production. A good sense of humor has been shown to relate to well-being via several mechanisms (e.g., Herzog & Strevey, 2008; Martin, 2001). Martin (2001) described a portion of these mechanisms as the positive emotional states that coincide with humor, the stress-relieving effects of humor, and the social support that accompanies the use of humor. The positive affect associated with humor has not only shown to

improve the emotional state of individuals by showing increases in self-esteem, self-efficacy, and optimism (e.g., Martin et al., 2003), but also improved functioning in attention-demanding tasks (Isen, Dubman, & Nowicki, 1987). The positive affect induced when exposed to humorous material has been correlated with enhanced problem-solving skills (Isen et al., 1987), a good indicator of well-being. This could potentially contribute to the benefits humor may have on positive aging.

Another benefit of humor is its uses as a coping mechanism and ability to moderate stress (e.g., Herzog & Strevey, 2008; Martin, 2001; Martin et al., 2003; Williams, 2001). Humor provides an alternative view of a stressful situation allowing people to emotionally distance themselves from negative scenarios, and thus, making potentially harmful circumstances, less impactful (Williams, 2001). Whether the stressful situation is a small public mishap or a more serious scenario (e.g., a death in the family), the ability to appraise the event in a humorous light can prove to be paramount in the ability to cope with said situation. However, it must be noted that the research on humor as a coping mechanism has produced inconsistent results (Martin, 2001). For example, specific uses of humor (e.g., sarcastic) may be less beneficial to handling stressful situations as opposed to less harmful uses of humor such as playful humor (e.g., Herzog & Strevey, 2008; Martin, 2001). Additionally, the frequency of humor being used as a coping mechanism can change its effectiveness (Overholser, 1992). Individuals who use humor as a coping strategy were assessed to be less depressed and lonely and have higher self-esteem than those who did not employ humor as a coping strategy (Overholser, 1992). However, the effect of humor on positive coping would appear to be short-term, and may not be an 'end-all, be-all' strategy to coping. Overholser (1992) posited that those who use humor to cope with stressful situations in excess, may be using humor as a form of denial for the stressful situation, and not an

actual way to handle and cope with the stress. Regardless, it is still apparent there are beneficial uses of humor in coping with stressful life situations. The moderation in which it is used though seems to be one of the keys in reaping these benefits.

The last potential benefit of humor proposed by Martin (2001) is the social support that accompanies the use of humor. It was proposed that a greater sense of humor leads to stronger, more meaningful interpersonal relationships. These more meaningful connections with other individuals increase levels of social support which can lead to health benefits such as stress-reduction (e.g., Gerber, 2013; Martin, 2001; Nemeroff, 1999). This indirect benefit of humor on amassing strong social support, can be seen as an especially helpful construct in the older population, who experience drastic changes in their social support framework (Gerber, 2013). The death of friends and family, children moving away, and moving into retirement homes, are all examples of these drastic changes to social support in older adults. So, developing a strong relationship with those they have around them, can prove to be important when these relationships may be fewer than in younger populations (Gerber, 2013). Additionally, the importance of “quality over quantity” in relationships seems to be paramount in an older population (e.g., Carstensen, Isaacowitz, & Charles, 1999; Gerber, 2013; Toyokawa, 2013). Carstensen et al. (1999) posited that older adults become much more selective in who they have relationships with. Specifically, those who demonstrate a greater potential for an intimate and more emotionally supportive relationship, will be favoured to become a part of another person’s social support. Accordingly, the use of humor may prove to be essential in an aging population when developing meaningful and supportive relationships (Gerber, 2013).

When examining the research on humor, there is an astounding focus on the benefits of humor, and very few examining its’ disadvantages. The potential for humor to have detrimental

effects on well-being becomes clearly evident in the discussion of humor and social support. Just because there is humor in use, does not mean it is always in a positive or lighthearted manner. The use of negative and hurtful humor becomes apparent, which would in fact prove detrimental in the forming of relationships. Martin (2001) brought this issue to light explaining a need to differentiate adaptive and maladaptive uses of humor. Accordingly, Martin et al. (2003) developed the Humor Styles Questionnaire (HSQ) to address this issue. This measure provides a more comprehensive definition of humor by providing an operationalization of four different ways in which humor is used. Defined more completely below, there are four styles of humor: two 'positive' styles (*self-enhancing* and *affiliative*) and two 'negative' styles (*self-defeating* and *aggressive*).

**Self-enhancing.** This style of humor is defined as the ability to see the funny side of things in life, and to maintain a lighthearted and amusing view of the world around them. This style of humor is seen as an effective coping mechanism (e.g., Martin et al., 2003; Reff, 2007). It allows the individual to address a current stressor, while also reducing internal distress by distancing the individual from the stressful stimuli (Reff, 2007; Hageman, 2015). For example, an individual who uses a self-enhancing style may make a joke before they go in for a stressful medical exam to calm themselves down. This style of humor is more focused with the self as opposed to relating interpersonally. Self-enhancing humor is positively related to measures of well-being, high self-esteem, and life satisfaction and negatively related to negative indicators of well-being such as depression and anxiety (e.g., Dozois, Martin, & Bieling, 2009; Martin et al., 2003).

**Affiliative.** Affiliative humor is a more interpersonal focused humor defined as saying non-hostile funny things, cracking jokes, and an ability to see the funny side of things. This style

of humor is used with entertaining others, enhancing relationships, and reducing stress (Dozois et al., 2009; Martin et al., 2003). Individuals who use affiliative humor may also make fun of themselves in a non-hostile manner while maintaining a strong sense of self (Martin et al., 2003; Reff, 2007). Accordingly, affiliative humor has been positively correlated with feelings of social support, self-esteem, relationship satisfaction, and positive psychological well-being (Martin et al., 2003; Reff, 2007).

**Self-defeating.** Martin et al. (2003) describe this style of humor as an individual who puts themselves down to be the “butt-end” of a joke in order to gain approval of their peers. As with self-enhancing humor, this is a self-focused style of humor and is used as a coping strategy (Martin et al., 2003; Reff, 2007). Self-defeating humor may be used in lieu of self-enhancing humor as a coping strategy with those who are unable to confront stressors and their negative feelings (Reff, 2007). Accordingly, this conflict avoidant method of coping is seen as ineffective and does not result in positive outcomes for the individual. Positive correlations with neuroticism, depression, and anxiety (e.g., Dozois et al., 2009; Martin et al., 2003; Reff, 2007) and negative correlations with psychological well-being, self-esteem, and quality of social support (e.g., Martin et al., 2003; Reff, 2007) provide support for the conceptualization of self-defeating humor as a ‘negative’ style of humor.

**Aggressive.** This style of humor is defined by teasing, joking, and sarcasm with the purpose of improving one’s self-worth at the expense of others (Martin et al., 2003, Reff, 2007). Aggressive humor can be used in the form of sexist or racist jokes, that can ridicule, demean, and offend others. Although the individual using the aggressive humor may have an increased self-concept by putting others down with humor, there are detrimental impacts on interpersonal relationships and the presence of quality social support (Reff, 2007). The use of aggressive

humor can harbour feelings of hostility, aggression, neuroticism, and cause disagreements in relationships (e.g., Didonato, Bedminster, & Machel, 2013; Martin, 2003; Reff, 2007).

As mentioned, the development of the humor styles has created a new dynamic in the approach of studying humor. The ability to objectively analyze both the positive and negative impacts of humor is a unique feature to the HSQ. Discerning between ‘positive’ and ‘negative’ styles of humor allow for a more detailed image in the role humor plays in a wide variety of aspects (e.g., well-being, depression, social support, self-esteem) in an individual’s life.

### **Cognitive Functioning in Older Adults**

The life expectancy of humans has gradually increased with advancements in medicine and health. Accordingly, the level of research, and the need for research into gerontology has drastically increased. The proportion of 45 – 64-year olds in the Canada population has grown from 21.3 – 27.8% from 1996 – 2016. Likewise, the proportion of 65-year olds and over in the Canada population has grown from 12.1% to 16.5% from 1996 – 2016 (Statistics Canada, 2017). Furthermore, the life expectancy has drastically increased in the last 70 years, 66.3 to 83.6 years for females and 63.0 to 79.4 years for males (Statistics Canada, 2017). Challenges faced by older adults including onset of disease, physical limitations, death of friends and family, and family moving away, can place extreme amounts of stress on them in their ‘golden’ years (Valliant, 2012).

Research has shown that an inevitable facet of aging is cognitive decline (e.g., Erickson & Kramer, 2009; Valliant, 2012). Physiological changes in the brain (e.g., beta-amyloid deposition) that occur across the lifespan alter brain functioning (e.g., memory, executive functioning) in both healthy older adults and those with more progressive forms of cognitive deterioration (Kennedy et al., 2012). Even this natural decline in cognitive abilities can place a

significant amount of stress on an older adult. For example, individuals who become less independent with regards to completing instrumental tasks of daily living (e.g., remembering to take medication, shopping), can view themselves as incompetent (Kennedy et al., 2012). Additionally, “*the good old days bias*” can magnify an individual’s cognitive deficits when they compare their current functioning at an older age, to their inevitably higher levels of functioning at a younger age (McFarland, Ross, & Giltrow, 1992). As mentioned, the harshness of cognitive decline can be far more severe than the expected cognitive changes that an individual experiences as they age.

One of the more debilitating symptoms that largely effects older adults cognitive functioning is dementia. The term dementia describes the symptoms associated with cognitive deterioration, such as memory loss, changes in behaviours and mood, and the ability to communicate. The severity of dementia worsens as the disease progresses and the symptoms intensify, eventually rendering an individual to be under constant supervision and care. This not only places a great amount of stress on the individual with the disease but places a great burden on those who are in their care. With the increase in size of the older population in Canada (Statistics Canada, 2017), there is an estimated increase in the proportion of older adults who will be living with dementia (Chambers, Bancej, & McDowell, 2016). Chambers et al. (2016) estimates 564,000 Canadians are living with dementia, and this number is estimated to almost double to 937,000 in the next 15 years.

The most common type of dementia is Alzheimer’s disease and accounts for 60 – 80% of dementia cases (Alzheimer’s Association, 2013). Typically, with Alzheimer’s disease, symptoms first present with difficulties with memory, and progress to challenges in performing daily tasks, general confusion, behavioural changes, difficulties in speaking and writing, and

decreases in judgement. Other forms of dementia, follow a similar pattern where they present with specific preliminary dementia symptoms, and progress to encompass a wide variety of dementia related symptoms (Alzheimer's Association, 2013). For example, vascular dementia (VD), impaired judgement and an inability to make plans is the initial dementia symptom, and progresses to include impairments in memory, behavioural changes, and other dementia related difficulties. Other types of dementia include frontotemporal dementia (FTD), dementia with Lewy bodies (DLB), and Parkinson's disease, which all present a similar course of onset of dementia related symptoms.

The stress placed on individuals associated with the natural cognitive decline of aging, and the more debilitating effects of dementia and the increase in its' prevalence, can play a prominent role in an individual's ability to lead a positive life. Accordingly, there is a clear call for understanding what positive characteristics an individual may possess that can combat the natural stressors older adults are faced with, as well as the more extreme stressors, such as dementia.

### **Positive Aging for Older Adults**

Positive aging in particular examines strategies used by individuals to improve the aging process. Hill (2005) posited four main components of positive aging: (i) *Mobilizing resources*, (ii) *Responding flexibly to life's challenges*, (iii) *Maintaining optimism*, and (iv) *Affirmative decision making*, as measured by the Positive Aging Measure (PAM; Slagle, 2012). These different aspects help an individual face the inherent challenges in aging. Furthermore, these features of positive aging can be utilized by anyone regardless of the number of stressors in their life (Hill, 2005; Slagle, 2012). For example, an individual who is now bound to a wheelchair

and is limited to what they can do for activities, is able to maintain the same levels of optimism as an individual who is still able to go for runs and have a more active lifestyle.

**Mobilizing resources.** This aspect of positive aging refers to accessing resources in the environment for social support (Hill, 2005; Slagle, 2012). This primarily includes in-person contact with caregivers, family, and friends, or less direct contact with such individuals via phone, FaceTime, e-mail, or other forms of indirect contact. Regardless of the method of contact, the presence of a perceived and effective social support unit has been shown to improve overall mental health (Wang & Shi, 2008), overall quality of life (Ye, Zhang, & Xu, 2007), self-esteem (Kleiman & Riskind, 2013), and psychological well-being (Rowe & Kahn, 2015). In an aging population, there is an inevitable deterioration of the social support group (e.g., deaths in the social support circle, immobility of the individual), that can have a negative impact on the quality of life (Rowe & Kahn, 1997; Slagle, 2012). Since the utility of the available social supports is shown to have positive effects on an aging population (e.g., Gerber, 2013; Kleiman & Riskind, 2008; Ye et al., 2007), and the loss of these social supports has a negative effect (Rowe & Kahn, 1997), having the necessary internal and external resources to access social support groups is of great importance for the positive aging process (Slagle, 2012).

**Flexibility in life's challenges.** Essentially, flexibility in positive aging refers to the cognitive and emotional flexibility of an individual when it comes to the challenges faced in the later years of life (Hill, 2005; Slagle, 2012). The ability to adapt to and face these changes is seen as an important aspect of the aging process (Johnco, Wuthrich, & Rapee, 2014; Slagle, 2012), as it has been shown that an increasingly rigid pattern of thinking may lead to an inability to adjust to changes in the environment (Levy, 2008; Slagle, 2012). Accepting that these challenges (e.g., death and disease) are a part of life, being able to react appropriately to these

challenges, and come out on the other side in a positive manner is one of the central features of those who are considered to be aging positively. Unfortunately, it has been shown that this flexibility may deteriorate with age (Johnco et al., 2014), so being able to maintain this mental flexibility could be an important feature of sustaining a state of positive aging.

**Maintaining optimism.** The role of optimism in maintaining well-being in an older population has been thoroughly studied (e.g., Olson, Fanning, Awick, Chung, & McAuley, 2014; Lewis, 2013; Pezent, 2012). Embracing the changes that occur in later life and preserving a positive perspective contributes to overall well-being (e.g., Olson et al., 2014; Slagle, 2012). Retaining an optimistic internal response through the drastic changes in later life can give people the confidence they need to face the stressors in their environment (Slagle, 2012; Vandergriff, 2008). Vandergriff (2008) showed that increased self-esteem was a good indicator of the presence of optimism. He also showed that increasing the self-esteem of individuals predicted a future increase in optimism. On the other hand, factors such as depression and anxiety predicted lower levels of optimism and well-being. Strategies that can increase self-esteem, and decrease incidents of depression and anxiety, may prove useful in increasing optimism and overall well-being in older adults.

**Affirmative decision making.** Enabling older adults to be active in their own life decisions can also contribute to well-being and positive aging (e.g., Meche, 2003; Slagle, 2012). Older adults face a wide variety of scenarios where they are able to make self-controlled decisions. These can range from simple decision points such as what the individual will eat for meals, or more difficult decisions such as when to sell their home and move into a smaller place. Allowing the individual to make these decisions can contribute to well-being (Slagle, 2012). Taking away the ability of older adults to be autonomous in decision-making in the different

facets of life can result in decreased self-confidence, well-being, and mental health (Hill, 2005; Slagle, 2012). Equipping older adults with the tools and the necessary information to keep and/or improve their decision-making abilities and allowing them to make their own decisions contributes well to the overall positive aging process (Slagle, 2012).

### **Existing Research Relating Humor, Aging, and Cognitive Impairment**

Despite the growing body of research with humor (and the humor styles) and its connections with well-being, there exists a gap in the literature regarding humor in older adults. More studies need to be directed at examining the role of humor in older adults, and specifically, how humor plays a role in the positive aging process.

A study by Celso, Ebener, and Burkhead (2003) looked at the relationship between humor as a coping strategy and life satisfaction in older individuals residing in assisted living facilities. It was found that using humor to cope with negative life events was not strongly related to overall life satisfaction. There was however a small significant relationship found between humor coping and life satisfaction among individuals who had a good health status. This work by Celso et al. (2003) suggests the function of humor as a coping mechanism may differ in older adults when it comes to dealing with negative life events.

An earlier study by Solomon (1996) examined the relationship between humor and aging well. Solomon (1996) found that certain aspects of humor were related to a measure of aging well. Specifically, humor appreciation and knowing many jokes was positively correlated with aging well, supporting the well-versed idea that humor is related to positive well-being. However, Solomon (1996) also found a negative relationship between aging well and the appreciation of ridicule humor, marking one of the earlier findings that some types of humor may affect well-being in a negative manner.

Other studies have generally found that humor (use, appreciation, laughter, etc.) has a positive role in the lives of older adults (e.g., Keene, 2012; Westburg, 2003; Yoder & Haude, 1995). Nonetheless, there is still a lack of research concerning the role of humor in the aging population. Additionally, the studies discussed highlight the need to address the potential negative role humor has in the aging process, as well as solidifying humor's positive role. Accordingly, the current study addresses these shortcomings in the literature by examining a more detailed definition of humor in the humor styles, and their role in the positive aging process in older adults.

These short-comings in the literature become even more apparent when examining the role of humor in those with varying levels of cognitive functioning. Humor appears to be important in coping with impairments through life, with severe forms of cognitive impairment such as dementia, being no exception (MacRae, 2008). Through reports of individuals living with Alzheimer's disease, MacRae (2008) found that maintaining the presence of humour and laughter was viewed as an essential part of successfully living with this disease.

A recent study by Clark et al. (2015) examined altered sense of humor in individuals with dementia. Individuals with Alzheimer's disease showed a decrease in humor use, as well as a change in humor preference. An increased preference for simplistic humor and childish humor appears to be hallmark in those with Alzheimer's disease. Additionally, those with Alzheimer's disease showed an increase in the use of vulgar jokes, which may be construed as aggressive humor in the current study. Similarly, other forms of dementia (e.g., behavioural variant FTD, semantic dementia) show even more extreme changes in humor. For example, the development of a dark and sadistic form of humor (e.g., amused by others mishaps), and a complete lack of a sense of humor, can occur in those affected with dementia.

Largely there is a lack of understanding of the social aspects of individuals with impaired cognitive functioning, including dementia (Clark et al., 2015), which is inclusive of understanding the role of humor. The current study will also attempt to begin bridging the gap amongst humor, aging, and cognitive functioning related research.

## **Hypotheses**

Accordingly, there are two main sets of hypotheses for the current study. The first set of hypotheses reflects predicted relationships between the four humor styles and positive aging. The second set of hypotheses reflects the predicted differences regarding the humor styles and positive aging between cognitively healthy older adults and those with impaired cognitive functioning.

**Hypothesis Ia.** A positive relationship between affiliative humor and positive aging is expected because an important aspect of positive aging is utilizing available and effective social supports (e.g., Gerber, 2013), suggesting an importance in maintaining relationships. Since one of the proposed benefits of affiliative humor is maintaining relationships and accessing social support (Martin et al., 2003), it is expected that older adults who use affiliative humor will have more access to positive social supports that contribute to positive aging.

**Hypothesis Ib.** Inversely, it is expected that aggressive humor will be negatively associated with positive aging. As eluded to earlier, aggressive humor can negatively impact the quality of an individual's social support (Reff, 2007). Since quality social support seems to be such an important part of the positive aging process, it can be concluded that aggressive humor use will have the opposite association with positive aging as affiliative humor. This may prove as an obstacle to those with dementia, a form of cognitive impairment, as they show increases in the use of vulgar humor (Clark et al., 2015).

**Hypothesis Ic.** It is proposed that a positive relationship will exist between self-enhancing humor and positive aging. Self-enhancing humor has been shown to increase self-esteem and help individuals maintain a positive outlook on situations (Martin et al., 2003). These by-products of self-enhancing humor may provide individuals with the confidence to make affirmative life choices, allow them to react to life's changes appropriately, and maintain optimism, all important factors in positive aging (e.g., Slagle, 2012).

**Hypothesis Id.** Finally, it is expected that a negative relationship will exist between self-defeating humor and positive aging. Self-defeating humor seems to work in the opposite fashion as self-enhancing humor (Martin et al., 2003). Explicitly, using self-defeating humor may hinder an older adult's ability to maintain optimism in the face of the stressors they face as a part of getting older, another important factor in positive aging. Accordingly, it may be expected that increased self-defeating humor use would negatively impact an individual's ability to age positively.

**Hypothesis IIa.** It is expected that cognitively healthy older adults will report higher levels of positive aging compared to older adults with impaired cognitive functioning. This difference can be expected as impaired cognitive functioning may pose as a life circumstance which acts as a barrier for individuals to cope successfully with life's challenges.

**Hypothesis IIb.** Accordingly, it is also expected that older adults with impaired cognitive functioning will report higher use of self-defeating humor compared to cognitively healthy older adults. As described previously, cognitive decline can impact an individual's ability to complete daily tasks independently (Kennedy et al., 2012). This loss of cognitive mastery may cause individuals to become more self-deprecating, increasing the use of self-defeating humor.

**Hypothesis IIc.** Similarly, it is also expected that older adults with impaired cognitive functioning will report higher use of aggressive humor compared to cognitively healthy older adults. An individual may become more irritable and easily frustrated by a noticed decline in cognitive functioning. For this reason, easily irritable individuals may be more readily provoked to use aggressive humor.

**Hypothesis IIId.** With regards to self-enhancing humor, it is hypothesized that cognitively healthy older adults will report higher use of this style of humor compared to older adults with impaired cognitive functioning. Contrary to the previous hypothesis, individuals who do not experience any impairment in cognitive functioning, may not experience this loss of cognitive mastery, and will thus remain confident in their abilities to face life's challenges. Accordingly, they may tend to use more self-enhancing humor to reflect this confidence in their maintenance of cognitive functionality.

**Hypothesis IIe.** Similarly, it is hypothesized that cognitively healthy older adults will report higher use of affiliative humor compared to older adults with impaired cognitive functioning. Related to the prior hypothesis, even if these cognitively healthy older adults lose a sense of mastery due to reasons other than a decline in cognitive functioning (e.g., physical limitations), they may still be confident in their cognitive abilities to reason an alternative method to complete a task. For older adults, this process often involves the inclusion of support from their peers (Hill, 2005), which would facilitate the use of affiliative humor.

Because of the complexity of the effects of humor, the fact that many factors can contribute to the positive aging process, and to examine differences in humour use between individuals with different levels of cognitive functioning, more complex analyses (i.e., discriminant function analysis and linear regression) will be conducted. These more in-depth

exploratory analyses aim to help further understand the humor styles, positive aging, and their relationship to each other.

## CHAPTER II

### Methods

#### Participants

The sample comprised of 24 older adults (16 females and 8 males) who had been recruited from two Northern Ontario communities, community programs and retirement or assisted living facilities. Individuals were permitted to participate in the study if they were 60 years of age and older. Participants age:  $M = 77.04$ ,  $9.26$ . No compensation was provided for individuals participating in the study.

#### Measures

**Humor Styles Questionnaire (HSQ; Martin et al., 2003).** The HSQ is a 32-item self-report measure assessing how much an individual engages in each of the four styles of humor: self-enhancing, affiliative, self-defeating, and aggressive. Each humor style has 8 statements where participants rate the level to which they agree with these statements on a 7-point Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). Statement examples include: “*If I am feeling upset or unhappy I usually try to think of something funny about the situation to make myself feel better*” – self-enhancing humor; “*I don’t have to work very hard at making other people laugh – I seem to be a naturally humorous person*” – affiliative humor; “*I often try to make people like or accept me more by saying something funny about my own weaknesses, blunders, or faults*”; and “*When telling jokes or saying funny things, I am usually not very concerned about how other people are taking it*” – aggressive humor.

There is substantial support in favour of the reliability and validity of the HSQ. The four subscales for each humor style seem to be exclusively measuring a different facet of humor use with strong Cronbach’s alphas: .77 (aggressive humor), .80 (self-defeating humor), .80

(affiliative humor), and .81 (self-enhancing humor) (Martin et al., 2003). Additionally, significant correlations were found between self-reported scores on the HSQ and peer ratings (Martin et al., 2003), providing further evidence for the validity of the HSQ.

**Positive Aging Measure (PAM; Slagle, 2012).** The PAM is a 12-item self-report measure assessing four aspects of positive aging: flexibility, optimism, mobilizing resources, and decision making. Each aspect of positive aging contains three statements that participants rate on a 5-point Likert scale ranging from 1 (*not at all like me*) to 5 (*a lot like me*), in agreement to how much that statement applies to them. Examples of items include: “*I’m set in my ways*” – flexibility; “*I am more of a glass half full person*” – optimism; “*If I couldn’t get my mail for some reason, I could ask a neighbour or a friend to get it for me*” – mobilizing resources; and “*Decisions I make usually have a positive impact on my life*” – decision making.

The PAM demonstrates strong internal consistency (Slagle, 2012). Acceptable Cronbach’s alphas for each of the subscales ranging from .64 (flexibility) to .87 (decision making), suggest each subscale is adequately measuring a different aspect of positive aging. Furthermore, the PAM demonstrates strong convergent validity when the PAM and PAM subscales were assessed against measures that examined similar constructs (Slagle, 2012). Strong positive correlations were demonstrated between: the PAM and the Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006),  $r = .41$ ; the flexibility subscale and the Cognitive Flexibility Scale (CFS; Martin & Rubin, 1995),  $r = .31$ ; the optimism subscale and the Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994),  $r = .70$ ; the mobilizing resources subscale and the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988),  $r = .50$ ; and the decision making subscale and the Decision Making Questionnaire (DMQ; Mann, Burnett, Radford, & Ford, 1997),  $r = .31$ .

**Rosenberg Self-Esteem Inventory (RSEI; Rosenberg, 1965).** The RSEI is a 10-item self-report measure of self-esteem in which participants are asked to indicate level of agreement with statements on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Examples of items include, “*I feel I do not have much to be proud of*”, “*All in all, I am inclined to think that I am a failure*”, and “*I take a positive attitude toward myself*”. The RSEI has shown acceptable internal consistency (Cronbach’s alpha = .88).

**Mini-Mental State Examination (MMSE; Folstein et al., 1975).** The MMSE is an 11-item tester administered examination that focuses on assessing the cognitive aspects of mental functioning. The MMSE was designed as a cognitive screener for cognitive impairment and dementia in older adults (Tombaugh & McIntyre, 1992). Limitations of the MMSE include specificity of brain dysfunction or detection of mild dementia (Tombaugh & McIntyre, 1992; McDowell, Kristjansson, Hill, & Hebert, 1997). The MMSE is divided into two sections, the first assessing orientation, memory, and attention, and only requires verbal responses, and the second assesses the ability to name things, follow verbal or written commands, write sentences, and copy a figure. Tombaugh and McIntyre (1992), summarize the MMSE has having strong internal consistency, moderate test-retest reliability, and acceptable sensitivity to identifying individuals with cognitive impairments.

**Demographic Measures.** Participants provided demographic information pertaining to age, gender, years of education, marital status, and ethnicity.

## **Procedure**

Participants signed up for the study via recruitment posters. Sessions to administer the measures were scheduled based on the availability of participants. Administration of measures was done orally by the researcher to ensure consistency across groups and individuals. If the

measures could not be administered orally due to participant restrictions (e.g., hearing difficulties), participants were able to fill out the measures using paper and pencil themselves. Due to the standard oral administration of the measures, sessions were administered individually. Upon arriving for the study, participants were asked to read a Letter of Information, or had the Letter of Information read to them, were given instructions on filling out the outlined measures, and signed an informed consent form. For those who had care partners, the care partners were encouraged to be involved in the consent process. Care partners were also allowed to be present during the administration of the tests and measures. There was no time limit on completing the measures, but participants were able to complete all of the measures in approximately 30 minutes. If participants were unable to comfortably complete all the measures in one session (e.g., due to fatigue), additional sessions were scheduled to complete the measures as necessary. Once the measures were completed, any questions the participants had were answered. Participants were then given a debriefing form and dismissed.

## **CHAPTER III**

### **Results**

#### **Overview**

This chapter has been organized into several sections. The first section describes the sample. The second section presents the descriptive statistics and the third section presents the inferential statistics used in testing the hypotheses. Finally, exploratory analyses are explored in the final section.

#### **Description of the Sample**

The participants in this study were selected through voluntary participation in response to advertised recruitment posters. There was a total of 25 participants. One participant was excluded from the analysis due to incomplete questionnaires. Descriptive statistics for demographic variables are presented in Table 1. Participants ranged in age from 60 – 89 ( $M = 77.04$ ,  $SD = 9.29$ ). The majority of participants (66.7%) were female. Half of the participants (50%) were married and half of the participants were either widowed, divorced, or other. Whereas 54% of the participants fell within normal limits (i.e., below average, average, or above average) with respect to cognitive functioning on the MMSE, the other 46% of participants fell within the impaired range (i.e., mildly impaired, moderately impaired, severely impaired). Participants were placed into these two MMSE classification groups based on comparisons to demographically matched norms.

Table 1

*Demographic Characteristics of the Sample*

Variable	Category	Frequency	Percentage
Gender	Female	16	66.7
	Male	8	33.3
Marital Status	Divorced	1	4.2
	Married	12	50.0
	Never Married	1	4.2
	Widowed	9	37.5
	Other	1	4.2
MMSE	Within Normal Limits	11	45.8
	Impaired	13	54.2

*Note.*  $N = 24$ . MMSE = Mini-Mental State Examination

## Descriptive Statistics

The means, standard deviations, and ranges for the humor, positive aging, self-esteem, and cognitive functioning measures are presented in Table 2. Examination of the table shows that the mean, standard deviation, and range values are close in comparison to those reported in previous research, with a few differences. Specifically, affiliative humor and aggressive humor scores are a full standard deviation below norms expressed in the development of the HSQ (Martin et al., 2003). This may be due to the mean age differences between the current study ( $M = 77.04$ ) and the mentioned study ( $M = 29.06$ ), that has resulted in a difference in reported use of these humor styles. Additionally, the general cut-off score for cognitive impairment on the MMSE in the general population is reported as 24/30 (Folstein et al., 1975). The average MMSE score ( $M = 23.71$ ) in the current study falls below this general cut-off score. This may be due to a portion of the individuals in the cognitively impaired range falling in the moderately to severely impaired score ranges on the MMSE. Moreover, the current study reported the average MMSE score of those scoring within normal limits as ( $M = 28.27$ ), which closely resembles reported averages for this group (Folstein et al., 1975).

The simple correlations between the four humor styles are displayed in Table 3. The strongest relationship was between affiliative and self-enhancing humor ( $r = .51$ ), whereas other correlations reflect non-significant relationships between the subscales. These values are comparable to those reported in previous research. However, previous research (e.g., Martin et al., 2003) demonstrated a significant negative correlation between self-enhancing and self-defeating humor, whereas the current study showed a non-significant relationship between these two styles of humor. This may be due to the current study focusing on a specific sub-population (i.e., older adults) that create a different profile of humor use.

The simple correlations between the four constituents of the PAM and PAM total score are displayed in Table 4. These mean, standard deviation, and range values are comparable to those reported in previous research with similarly aged populations (e.g., Slagle, 2012). There were strong relationships between all of the PAM subscales and PAM total score, except for mobilizing resources, which only showed a marginally significant relationship with PAM total score.

Table 5 presents the correlations between the humor styles and self-esteem. The moderate, negative relationship between self-defeating humor and self-esteem ( $r = -.43$ ) was in the expected direction, consistent with previous research. Similarly, aggressive humor showed a negligible relationship with self-esteem, consistent with previous research. However, self-enhancing and affiliative humor showed a non-significant relationship with self-esteem, whereas previous research has shown a positive relationship between these humor styles and self-esteem. This may be due to the small sample size in the current study.

Table 5 also presents the correlations between the four humor styles and scores on the MMSE. There was a moderate, positive relationship between aggressive humor and scores on the MMSE ( $r = .43$ ), which suggests that individuals with higher MMSE scores use more aggressive humor. None of the other humor styles significantly correlated with scores on the MMSE.

Table 6 presents the correlations between the ratings of positive aging and self-esteem. There was a strong positive relationship between an affirmative decision making and self-esteem ( $r = .62$ ), such that higher scores on a self-esteem measure correlated with higher scores on a measure of affirmative decision making. The other ratings of positive aging did not correlate

significantly with self-esteem, which was not expected in light of previous research (e.g., Slagle, 2012).

Table 6 also presents the correlations between measures of positive aging and scores on the MMSE. There was a moderate, negative relationship between optimism and scores on the MMSE ( $r = -.41$ ), which was in the opposite direction of the expected relationship. None of the other measures of positive aging significantly correlated with scores on the MMSE.

Correlation analyses were performed for the “within normal limits” and “impaired” groups separately. Results did not differ significantly from analyses of the total sample.

Table 2

*Descriptive Statistics for the Humor, Positive Aging, Self-Esteem, and Cognitive Functioning Measures*

Category	Measure	<i>M</i>	<i>SD</i>	Range
Humor	HSQ Affiliative	38.71	10.58	13 – 56
	HSQ Self-Enhancing	36.04	7.58	20 – 50
	HSQ Aggressive	22.08	5.87	8 – 32
	HSQ Self-Defeating	25.50	7.85	8 – 40
Positive Aging	PAM Optimism	11.25	2.83	4 – 15
	PAM MR	13.04	1.76	10 – 15
	PAM ADM	11.75	2.75	3 – 15
	PAM Flexibility	9.25	3.35	1 – 14
	PAM Total	45.29	7.73	23 – 59
Self-Esteem	RSEI	32.71	4.53	23 – 40
Cognitive Functioning	MMSE	23.71	5.52	11 – 30

*Note.* *N* = 24. HSQ = Humor Styles Questionnaire, PAM = Positive Aging Measure, ADM = Affirmative Decision Making, MR = Mobilizing Resources, RSEI = Rosenberg Self-Esteem Inventory, MMSE = Mini-Mental State Examination

Table 3

*Correlations between the HSQ Subscales: Affiliative, Self-Enhancing, Aggressive, and Self-Defeating*

	Self-Enhancing	Aggressive	Self-Defeating
Affiliative	.513*	-.266	.275
Self-Enhancing		.118	.077
Aggressive			-.193

\**p* < .05

Table 4

*Correlations between the PAM Subscales: Optimism, Mobilizing Resources, Affirmative Decision Making, and Flexibility and PAM Total Score*

	Flexibility	Affirmative Decision Making	Mobilizing Resources	PAM Total
Optimism	.433*	.705***	.254	.861***
Flexibility		.332	-.068	.695***
ADM			.290	.825***
MR				.390 ( $p = .06$ )

*Note.* PAM = Positive Aging Measure, ADM = Affirmative Decision Making, MR = Mobilizing Resources

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 5

*Correlations between the HSQ Subscales and a Measure of Self-Esteem and Scores on the MMSE*

	Affiliative	Self-Enhancing	Aggressive	Self-Defeating
RSEI	.126	.091	-.170	-.433*
MMSE	.109	-.017	.426*	-.374

*Note.* RSEI = Rosenberg Self-Esteem Inventory, MMSE = Mini-Mental State Examination

\* $p < .05$

Table 6

*Correlations between the PAM Subscales and PAM Total Score and a Measure of Self-Esteem and Scores on the MMSE*

	Optimism	Flexibility	Affirmative Decision Making	Mobilizing Resources	PAM Total
RSEI	.243	.079	.624**	.111	.371
MMSE	-.407*	-.193	-.082	.190	-.219

*Note.* RSEI = Rosenberg Self-Esteem Inventory, PAM = Positive Aging Measure, MMSE = Mini-Mental State Examination

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

## Hypothesis Testing

### Correlational Analysis

The first set of hypotheses was concerned with examining whether styles of humor (self-enhancing and affiliative, self-defeating and aggressive) are related to positive aging. To address this research question, Pearson correlation analysis was used. Table 7 presents Pearson product-moment correlation coefficients among HSQ humor styles (self-enhancing and affiliative, self-defeating and aggressive) and the total score on the PAM. Contrary to hypotheses Ia – d, there were no significant correlations between any of the humor styles and positive aging.

To further explore the relationship among between the humor styles and positive aging, another Pearson correlations was used examining the relationship between the humor styles and the components of positive aging (i.e., optimism, flexibility, affirmative decision making, and mobilizing resources). The results are presented in Table 7. Consistent with the prior analysis and contrary to hypotheses Ia – d, there were no significant ( $p < .05$ ) correlations between any of the humor styles and any of the components of positive aging (i.e., maintaining optimism, flexibility, affirmative decision making, and mobilizing resources).

A power analysis determined power was not a significant issue in the current study. Results of the power analysis found that if the sample were to have included 50 cases, 17 of the 20 correlations shown in Table 7, would remain non-significant at  $p < .05$ . Due to the sample size limitations, it was decided to also examine the correlational relationships at a significance level of  $p < .10$ . It was found that only mobilizing resources would significantly correlate with self-enhancing humor ( $p = .06$ ). All other correlations remained non-significant at the  $p < .10$  level. These results support the validity of the original conclusion – that by and large humor was not related to positive aging.

Table 7

*Bivariate Correlations among the HSQ Subscales and the PAM Subscales and PAM Total Score*

	Affiliative	Self-Enhancing	Aggressive	Self-Defeating
PAM Total	.042	-.120	-.188	-.059
PAM Optimism	-.028	-.065	-.284	-.080
PAM Flexibility	.086	.089	.096	.210
PAM ADM	.082	-.135	-.208	-.322
PAM MR	-.065	-.379	-.228	-.027

*Note.* PAM = Positive Aging Measure, ADM = Affirmative Decision Making, MR = Mobilizing Resources

\* $p < .05$

## **Analysis of Mean Differences**

The second set of hypotheses (hypotheses IIa – e) examined if individuals with different levels of cognitive functioning varied in levels of positive aging and/or use of the separate humor styles. Based on MMSE classification, participants were divided into two groups: within normal limits of cognitive functioning and impaired cognitive functioning. To address these hypotheses, an independent sample t-test was used. Inconsistent with hypothesis IIa, the t-test results showed that there were no statistically significant differences between participants who were considered cognitively impaired versus those considered to be within normal limits of cognitive functioning in terms of components of PAM and PAM total score (see Table 8 for group statistics).

Consistent with hypothesis IIb, the independent sample t-test results showed that the impaired cognitive functioning group used the self-defeating humor style ( $M = 28.23$ ,  $SD = 7.17$ ) more than the within normal limits of cognitive functioning group ( $M = 22.27$ ,  $SD = 7.68$ ), at a significance level of  $p \leq .06$ :  $t(22) = 1.96$ ,  $p = .06$ .

Inconsistent with hypotheses IIc, d, and e, the other humor styles (i.e., self-enhancing, affiliative, and aggressive) did not differ across the two groups (see Table 9 for group statistics).

Table 8

*Means and Standard Deviations of PAM Subscales and PAM Total Score by MMSE Classification*

	MMSE Category	<i>N</i>	<i>M</i>	<i>SD</i>
PAM Total	Within Normal Limits	11	45.64	10.66
	Impaired	13	45.92	4.96
PAM Optimism	Within Normal Limits	11	10.36	3.50
	Impaired	13	12.00	1.96
PAM Flexibility	Within Normal Limits	11	9.91	3.59
	Impaired	13	9.61	2.40
PAM ADM	Within Normal Limits	11	11.82	3.46
	Impaired	13	11.69	2.14
PAM MR	Within Normal Limits	11	13.55	1.57
	Impaired	13	12.62	1.85

*Note.* PAM = Positive Aging Measure, ADM = Affirmative Decision Making, MR = Mobilizing Resources, MMSE = Mini-Mental State Examination  
 $p > .05$  in all cases

Table 9

*Means and Standard Deviations of HSQ Subscales by MMSE Classification*

	MMSE Category	<i>N</i>	<i>M</i>	<i>SD</i>
HSQ Affiliative	Within Normal Limits	11	40.36	13.14
	Impaired	13	37.31	8.12
HSQ Self-Enhancing	Within Normal Limits	11	36.27	6.28
	Impaired	13	35.85	8.78
HSQ Aggressive	Within Normal Limits	11	24.27	5.29
	Impaired	13	20.23	5.89
HSQ Self-Defeating*	Within Normal Limits	11	22.27	7.68
	Impaired	13	28.23	7.17

*Note.* HSQ = Humor Styles Questionnaire, MMSE = Mini-Mental State Examination

\* $p < .06$

## **Predicting Positive Aging Factors and Cognitive Functioning from the Humor Styles**

Simple linear forced entry regression analyses were conducted to investigate how the four humor styles, when considered together, may contribute to the prediction of positive aging factors and cognitive functioning. Specifically, this analysis was used to determine whether the combination of all four humor styles added to the prediction of these constructs. This was done by entering the four humor styles into the regression equation, and comparing these regression findings to the aforementioned results of the correlational analyses. Details of the regression analyses are discussed, and a summary of the regression findings can be found in Table 10.

**PAM Total.** When examining the humor styles as predictors for PAM Total scores, the overall regression equation was non-significant,  $F(4, 23) = .30, p = .88, R^2 = .06$ . Upon closer examination, none of the humor styles contributed any unique prediction to the variance in scores on the PAM Total scores. This was consistent with previous correlational findings, in which none of the humor styles significantly correlated with PAM Total scores. A stepwise regression analysis was also conducted. No variables were entered into the equation.

**PAM Flexibility.** When examining the humor styles as predictors for PAM Flexibility scores, the overall regression equation was non-significant,  $F(4, 23) = .35, p = .84, R^2 = .07$ . Upon closer examination, none of the humor styles contributed any unique prediction to the variance in scores on the PAM Flexibility subscale of the PAM. This was consistent with previous correlational findings, in which none of the humor styles significantly correlated with this measure. A stepwise regression analysis was also conducted. No variables were entered into the equation.

**PAM Optimism.** When examining the humor styles as predictors for PAM Optimism scores, the overall regression equation was non-significant,  $F(4, 23) = .56, p = .69, R^2 = .11$ .

Upon closer examination, none of the humor styles contributed any unique prediction to the variance in scores on the PAM Optimism subscale of the PAM. This was consistent with previous correlational findings, in which none of the humor styles significantly correlated with this measure. A stepwise regression analysis was also conducted. No variables were entered into the equation.

**PAM Affirmative Decision Making.** When examining the humor styles as predictors for PAM Affirmative Decision Making scores, the overall regression equation was non-significant,  $F(4, 23) = 1.36, p = .29, R^2 = .22$ . Upon closer examination, none of the humor styles contributed any unique prediction to the variance in scores on the PAM Affirmative Decision Making subscale of the PAM. This was consistent with previous correlational findings, in which none of the humor styles significantly correlated with this measure. A stepwise regression analysis was also conducted. No variables were entered into the equation.

**PAM Mobilizing Resources.** When examining the humor styles as predictors for PAM Mobilizing Resources scores, the overall regression equation was non-significant,  $F(4, 23) = 1.10, p = .38, R^2 = .19$ . Upon closer examination, none of the humor styles contributed any unique prediction to the variance in scores on the PAM Mobilizing Resources subscale of the PAM. This was consistent with previous correlational findings, in which none of the humor styles significantly correlated with this measure. A stepwise regression analysis was also conducted. No variables were entered into the equation.

**MMSE.** When examining the humor styles as predictors for MMSE scores, the overall regression equation was significant,  $F(4, 23) = 3.61, p = .02, R^2 = .43$ . Consistent with the aforementioned correlational results, aggressive humor ( $B = .49$ ) was a significant, positive predictor of MMSE scores, such that high levels of aggressive humor contributed to a greater

score on the MMSE. Converse to the aforementioned correlational results, affiliative humor ( $B = .27$ ) was a significant, positive predictor of MMSE scores, such that high levels of affiliative humor predicted a greater score on the MMSE. Additionally, self-defeating humor ( $B = -.27$ ) was a significant, negative predictor of MMSE scores, such that high levels of self-defeating humor predicted to a lower score on the MMSE.

Overall, the above patterns reveal that the humor styles are not significant predictors of positive aging. However, it appears that aggressive, affiliative, and self-defeating humor have some predictive power for cognitive functioning as measured by the MMSE. Greater aggressive and affiliative humor, and lesser self-defeating humor were predictive of higher cognitive functioning.

### **Predicting Cognitive Functioning from Positive Aging**

A simple linear regression analysis was also conducted to investigate how the four constituents of positive aging, when considered together, may contribute to the prediction of cognitive functioning. This was done by entering the four positive aging constituents into the regression equation, and comparing these regression findings to the aforementioned results of the correlational analyses. Details of the regression analysis are discussed, and a summary of the regression finding can be found in Table 10.

**MMSE.** When examining the constituents of positive aging as predictors for MMSE scores the overall regression equation was non-significant,  $F(4, 23) = 2.16, p = .11, R^2 = .31$ . However, consistent with previous correlational results, it appeared that optimism ( $B = -1.41$ ) was a significant, negative predictor on its own, such that high levels of optimism predicted low scores on the MMSE. A stepwise regression analysis was also conducted. The overall regression equation was significant,  $F(1, 23) = 4.36, p < .05, R^2 = .17$ . Similar to the aforementioned

results, optimism ( $B = -.79$ ) was a significant, negative predictor of MMSE scores on its own, such that high levels of optimism predicted low scores on the MMSE.

Table 10

*Summary of Findings and Unstandardized Beta Coefficients for Forced Entry Regression Analyses of Positive Aging Factors and Cognitive Functioning*

Category	Measure	Overall Model	Predictors
Positive Aging	PAM Total	$F = .30$ $R^2 = .06$ $p = .88$	HSQ Self-Enhancing (-.15) HSQ Affiliative (.07) HSQ Self-Defeating (-.11) HSQ Aggressive (-.22)
	PAM Flexibility	$F = .35$ $R^2 = .07$ $p = .84$	HSQ Self-Enhancing (.01) HSQ Affiliative (.02) HSQ Self-Defeating (.10) HSQ Aggressive (.09)
	PAM Optimism	$F = .56$ $R^2 = .11$ $p = .69$	HSQ Self-Enhancing (.01) HSQ Affiliative (-.03) HSQ Self-Defeating (-.04) HSQ Aggressive (-.16)
	PAM ADM	$F = 1.36$ $R^2 = .22$ $p = .29$	HSQ Self-Enhancing (-.08) HSQ Affiliative (.07) HSQ Self-Defeating (-.15) HSQ Aggressive (-.09)
	PAM MR	$F = 1.10$ $R^2 = .19$ $p = .38$	HSQ Self-Enhancing (-.10) HSQ Affiliative (.02) HSQ Self-Defeating (-.01) HSQ Aggressive (-.05)
Cognitive Functioning	MMSE	$F = 3.61$ $R^2 = .43$ $p = .02$	HSQ Self-Enhancing (-.23) HSQ Affiliative (.27)* HSQ Self-Defeating (-.27)* HSQ Aggressive (.49)*
	MMSE	$F = 2.16$ $R^2 = .31$ $p = .11$	PAM Flexibility (.04) PAM Optimism (-1.41)* PAM ADM (.69) PAM MR (.84)

*Note.* PAM = Positive Aging Measure, ADM = Affirmative Decision Making, MR = Mobilizing Resources, MMSE = Mini-Mental State Examination, HSQ = Humor Styles Questionnaire  
\* $p < .05$ , otherwise  $p > .05$  for individual predictors

## **Additional Analyses**

A discriminant function analysis was used to predict cognitive functioning (within normal limits or impaired) on the basis of the 4 humor styles (self-enhancing, affiliative, self-defeating, and aggressive). The function was significant ( $p < .05$ ). The canonical correlation was moderate (.62), and Wilks' Lambda indicated a degree of overlap (.62). There was 83.30% correct classification. The group with the higher centroid was the within normal limits of cognitive functioning. According to the standardized canonical discriminant function coefficients predictions of being within normal limits with regards to cognitive functioning were based on high scores for aggressive humor. Being impaired with regards to cognitive functioning was predicted by high scores on self-defeating humor. The discriminant function formula was: Within Normal Limits Cognitive Functioning =  $-1.85 - .07*\text{Self-Enhancing} + .10*\text{Affiliative} - .11*\text{Self-Defeating} + .15*\text{Aggressive}$ .

An additional discriminant function analysis was used to predict cognitive functioning (within normal limits or impaired) on the basis of the four positive aging variables (flexibility, optimism, affirmative decision making, and mobilizing resources). The function was non-significant ( $p = .152$ ).

## CHAPTER IV

### Discussion

The current thesis examined the relationship between the humor styles (self-enhancing, affiliative, self-defeating, and aggressive), positive aging and positive aging constituents (flexibility, optimism, affirmative decision making, and mobilizing resources), and cognitive functioning. The first objective was to assess the correlational relationships between the humor styles and a measure of positive aging. With this initial objective, it was firstly hypothesized that a positive relationship would exist between affiliative humor and positive aging. This hypothesis was informed by research indicating that affiliative humor is largely associated with maintaining stable relationships and accessing strong social supports (Martin et al., 2003), an important aspect of positive aging. However, inconsistent with this rationale, the current thesis found no significant relationship between affiliative humor and positive aging or any constituents of positive aging (i.e., flexibility, optimism, affirmative decision making, mobilizing resources). This non-significant relationship may reflect the decrease in size of social circles as an individual gets older (e.g., Kissane & McLaren, 2006). Due to these smaller social networks, the use of affiliative humor to maintain social relationships appears to become a less important aspect of an older adult's life. Additionally, the current study sampled a proportion of older adults who live in retirement facilities. It has been shown that older adults who live in retirement (or related) facilities, may experience increased levels of social isolation (Kissane & McLaren, 2006). As such, the lack of relationship between affiliative humor and positive aging could be expected since individuals living in retirement facilities may not be put into many social situations where they need to use affiliative humor style to help them adapt to challenges they may face.

Secondly, it was hypothesized that a negative relationship would exist between aggressive humor and positive aging. This relationship was predicted because it has been shown that older adults who use indirect forms of aggression (e.g., using humor to make someone look bad), show disconnections in their social interaction networks (Walker, Richardson, & Green, 2000). As such, these disconnections in social networks would prevent individuals from seeking help within their immediate communities when they are faced with any difficulties that may require support. However, inconsistent with this hypothesis, the current thesis found no significant relationship between aggressive humor and positive aging. The lack of a significant relationship between aggressive humor and positive aging suffers a similar reasoning to the lack of relationship between affiliative humor and positive aging. Both affiliative and aggressive humor are “other” focused styles of humor, in that they function in the context of social relationships. Given the decrease in social networks with older adults, they may not be put into enough social interactions where aggressive humor would be able to cause a hindrance in these social relationships that they may rely on to help with the aging process.

Thirdly, it was hypothesized that a positive relationship would exist between self-enhancing humor and positive aging. This relationship was predicted because it has been shown that self-enhancing humor is generally seen as the “coping” style of humor, and is important for fostering overall psychological well-being (e.g., Martin et al., 2003). However, the current study showed no significant relationship between self-enhancing humor and positive aging. This may be due to the fact that individuals scoring high on the measures of positive aging may not be displaying these behaviours in adaptive ways. For example, it is considered to be maladaptive to positive aging if one is “set in their ways”. An individual who is already in a position where they have an overall positive experience in their day-to-day lives, it would be adaptive for them to

stay “set in their ways”. As such, the lack of a relationship between self-enhancing humor and positive aging measures could be expected since individuals scoring high on positive aging measures may be a mixed-bag of adaptive and maladaptive, and self-enhancing humor is generally seen as an adaptive humor style.

The final hypothesis of the first objective suggested that a negative relationship would exist between self-defeating humor and positive aging. This relationship was predicted in tangent to the previous hypothesis, as self-defeating humor has been shown to be maladaptive, and negatively correlated with psychological well-being (e.g., Martin et al., 2003). Contrary to this hypothesis, the current study showed no significant relationship between self-defeating humor and positive aging measures. Similar to the previous hypothesis, individuals with high scores on positive aging measures may be experiencing a mixed-bag of adaptive and maladaptive traits. For example, individuals who believe their decisions have a positive impact on their life, may be making these decisions at the cost of their own happiness, but it makes others around them happy. So, despite their being a reverberating positive impact in the individual’s life, they may remain unhappy with themselves because they are making decisions for the benefit of others happiness, at the cost of their own happiness. Accordingly, the lack of a relationship between self-defeating humor and positive aging measures may reflect the nature of adaptive and maladaptive traits that could encompass high scores on the positive aging measures, where self-defeating humor is seen as a maladaptive humor style.

The second objective of the current study was to assess the differences in humor styles and positive aging between individuals who scored within normal limits and impaired on a measure of cognitive functioning. The first hypothesis of this objective suggested that individuals with intact cognitive functioning would score higher on measures of positive aging

compared to individuals with impaired cognitive functioning. This hypothesis was informed through the idea that impaired cognitive functioning would interfere with an individual's ability to be flexible in life's challenges, maintain optimism in the face of declining functioning, make affirmative life choices, and effectively navigate their social environments. Contrary to this hypothesis, the current study did not show any differences in positive aging measures between the two groups. This is consistent with previous research that states individuals who are experiencing a variety of stressors (e.g., declining cognitive functioning, declining physical functioning, social isolation) are just as capable of experiencing positive aging as those who have a fewer number of stressors in their life (e.g., Hill, 2005, Slagle, 2012).

Considering differences in the use of the humor styles between the older adults with intact cognitive functioning, and those with impaired cognitive functioning, the current study found that individuals with impaired cognitive functioning used self-defeating humor more than those with intact cognitive functioning, which was consistent with the proposed hypothesis. This observed relationship is supported by past research that older adults who are experiencing cognitive deficits lose independence in different facets of their lives. Additionally, older adults who become more dependent often show a loss of motivation and helplessness (Coudin & Alexopoulos, 2010), which are symptoms of psychopathology. Self-defeating humor has been shown to correlate with a variety of symptoms of psychopathology (Martin et al., 2003). Accordingly, this loss of independence due to decreased cognitive functioning may result in these individuals to become more self-deprecating and increase their use of self-defeating humor. This result was further supported by the current study showing that self-defeating humor and self-esteem were significantly correlated.

However, inconsistent with the hypotheses put forth in the second objective, use of the other humor styles (i.e., self-enhancing, affiliative, and aggressive) did not differ significantly between the two groups, which may be better explained with the regression results of the current study.

Results of the regression analyses closely resembled the correlational findings. Notably, findings indicated that affiliative and aggressive humor were significant positive predictors of cognitive functioning. It is noted that both of the socially focused styles of humor were significant positive predictors of cognitive functioning. As previously mentioned, older adults who have reduced cognitive functioning, experience increased levels of social isolation and disconnected social networks (e.g., Walker et al., 2000; Kissane & McLaren, 2006). Considering this, individuals with normal cognitive functioning could be more capable at encountering and maintaining social relationships, and would thus be put into more social situations. As such, these individuals would likely show increased use of the more socially focused styles of humor, affiliative and aggressive humor. Despite evidence that aggressive humor has been shown to be detrimental to social relationships (e.g., Martin et al., 2003; Reff, 2007), it may be that aggressive humor when used in the context of close friendships (e.g., poking fun at friends) may actually be used to uphold and maintain social relationships. This is partially supported by the reported positive correlation between cognitive functioning and aggressive humor. Additional support for this relationship is provided by the discriminant function analysis that shows that intact cognitive functioning was predicted by higher use of aggressive humor. However, it should be noted that the direction of this relationship is more likely that older adults who are cognitively intact, possess the divergent thinking that is required to use aggressive humor appropriately in social contexts. Whereas those with impaired cognitive functioning have been

shown to have reduced divergent thinking (e.g., Ruggiero et al., 2018), which would make them less capable at properly applying the use of aggressive humor.

Moreover, findings indicated that self-defeating humor was a significant negative predictor of cognitive functioning in a regression model. This is consistent with previously stated results showing individuals with impaired cognitive functioning using self-defeating humor significantly more than those classified as having intact cognitive functioning. The discriminant function analysis also showed support for this relationship as impaired cognitive functioning was predicted by higher use of self-defeating humor.

Concerning the other regression result, optimism was found to be a significant negative predictor of cognitive functioning. An important observation is that a portion of the individuals with impaired cognitive functioning fell within the severely impaired range. With that in mind, previous research has shown that individuals with severe illnesses (e.g., dementia) and severe mental illnesses have a lack of insight into their deficits (anosognosia) (e.g., Rankin, Baldwin, Pace-Savitsky, Kramer, & Miller, 2005; Lecomte, Corbière, & Thérioux, 2010). Additionally, it has been suggested that accepting that one has an illness, and being aware of deficits, correlates with symptomatology of depression (e.g., Gonzalez, 2008; Lecomte, Corbière, & Thérioux, 2010).

### **Limitations and Future Directions**

In summary, the current study proposes that there is a complex relationship that exists between the humor styles, positive aging, and cognitive functioning. Most interestingly, the current study suggests that the more social forms of humor (i.e., affiliative and aggressive) are more commonly used in those with intact cognitive functioning. In light of aggressive humor being traditionally viewed as a “negative” style of humor, it may be that older adults who remain

cognitively intact across the lifespan have learned ways to use aggressive humor in a more “positive”, pro-social manner. However, the current study did not show a significant relationship between aggressive humor and measures of positive aging. Accordingly, future research could benefit from examining the context in which humor is used in older adults. More specifically, examining the perceived personality traits of an individual, and how their humor use is received. For example, when an individual who is perceived as having a more malicious personality uses aggressive humor, they may be viewed as making a malevolent joke, or as having “bad taste”. Conversely, when an individual who is perceived as having a warmer personality uses aggressive humor, they may be received as making a more tasteful joke. This would be due to the fact that the individual would not be perceived to be using the humor with the intent to hurt or offend someone, due to the context provided by their warmer personality. This would allow us to tease apart the lack of significant correlational relationships between positive aging and the humor styles in the current study.

Another encouraging finding from this study to build upon would be to use the current study, along with interviewing tools, and psychological assessment measures, as a baseline measurement in a longitudinal study with a larger sample size of older adults. This study design would address many of the shortcomings of the current study. First, the interviewing tools and psychological assessment measures would allow for the identification of the source of cognitive impairment (e.g., mild dementia, depression, head trauma). The current study’s use of the MMSE only allowed for the identification of cognitive impairment. Therefore, being able to identify the source of the cognitive impairment would allow for more specificity in identifying how different physical and mental ailments would impact positive aging and humor use in older adults. For example, older adults who have a mild cognitive impairment as a result of depression

may use self-defeating humor more frequently than others, as individuals with depression have a lowered sense of self, and self-defeating humor has been demonstrated to correlate with a low self-esteem. This could be in comparison to an individual who has a mild cognitive impairment as a result of head trauma to the frontal lobes, where there would be a lack of inhibition, possibly leading to more aggressive humor use. Accordingly, the gathering of a larger sample size would allow future studies to identify and examine differences in positive aging and humor use in these more specific groups. Furthermore, following up these baseline measurements with 6-month and 12-month follow ups would allow us to see if these results are consistent with individuals over time. Additionally, it would allow us to examine if humor use is a stable trait across time, or if it is transient with the state of the individual. Again, an individual with depression may experience transient changes in their humor use and cognitive abilities, that can cause fluctuations in their ability to positively age. Conversely, an individual who has experienced a head trauma may experience more stable changes in their humor use and cognitive abilities, that makes their ability to positively age more fixed.

## References

- Alzheimer's Association. (2013). 2013 Alzheimer's disease facts and figures. *Alzheimer's & dementia*, 9(2), 208-245.
- Berk, R. A. (2001). The active ingredients in humor: Psychophysiological benefits and risks for older adults. *Educational Gerontology*, 27(3-4), 323-339.  
doi:<http://dx.doi.org/10.1080/036012701750195021>
- Bonanno, G. A., Moskowitz, J. T., Papa, A., & Folkman, S. (2005). Resilience to loss in bereaved spouses, bereaved parents, and bereaved gay men. *Journal of Personality and Social Psychology*, 88(5), 827-843. doi:<http://dx.doi.org/10.1037/0022-3514.88.5.827>
- Bonfiglioli, L., & Bitti, P. E. R. (2012). Functions and meanings of smile and laughter. In P. Gremigni (Ed.), *Humor and health promotion; humor and health promotion* (pp. 45-57, Chapter x, 289 Pages) Nova Biomedical Books, Hauppauge, NY. Retrieved from <https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com/docview/1492670551?accountid=15115>
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54(3), 165-181.  
doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1037/0003-066X.54.3.165>
- Celso, B. G., Ebener, D. J., & Burkhead, E. J. (2003). Humor coping, health status, and life satisfaction among older adults residing in assisted living facilities. *Aging & Mental Health*, 7(6), 438-445. doi:<http://dx.doi.org/10.1080/13607860310001594691>
- Chambers, L. W., Bancej, C., & McDowell, I. (2016). *Prevalence and Monetary Costs of Dementia in Canada*. Alzheimer Society of Canada.

- Clark, C. N., Nicholas, J. M., Gordon, E., Golden, H. L., Cohen, M. H., Woodward, F. J., . . . Warren, J. D. (2015). Altered sense of humor in dementia. *Journal of Alzheimer's Disease, 49*(1), 111-119. <http://dx.doi.org.proxy1.lib.uwo.ca/10.3233/JAD-150413>
- Coudin, G., & Alexopoulos, T. (2010). 'Help me! I'm old!' how negative aging stereotypes create dependency among older adults. *Aging & Mental Health, 14*(5), 516-523.
- Deckers, L., & Ruch, W. (1992). The situational humour response questionnaire (SHRQ) as a test of "sense of humour": A validity study in the field of humour appreciation. *Personality and Individual Differences, 13*(10), 1149-1152.  
doi:[http://dx.doi.org/10.1016/0191-8869\(92\)90029-O](http://dx.doi.org/10.1016/0191-8869(92)90029-O)
- Didonato, T. E., Bedminster, M. C., & Machel, J. J. (2013). My funny valentine: How humor styles affect romantic interest. *Personal Relationships, 20*(2), 374-390.  
doi:<http://dx.doi.org/10.1111/j.1475-6811.2012.01410.x>
- Dozois, D. J., A., Martin, R. A., & Bieling, P. J. (2009). Early maladaptive schemas and Adaptive/Maladaptive styles of humor. *Cognitive Therapy and Research, 33*(6), 585-596.  
doi:<http://dx.doi.org/10.1007/s10608-008-9223-9>
- Erickson, K. I., & Kramer, A. F. (2009). Aerobic exercise effects on cognitive and neural plasticity in older adults. *British journal of sports medicine, 43*(1), 22-24.
- Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. *Journal of psychiatric research, 12*(3), 189-198.
- Foot, H., & McCreddie, M. (2006). Humour and laughter. In O. Hargie (Ed.), *3rd ed.; the handbook of communication skills (3rd ed.)* (3rd ed. ed., pp. 293-322, Chapter x, 586 Pages) Routledge, New York, NY.

- Fry, W. F. (1994). The biology of humor. *Humor: International Journal of Humor Research*, 7(2), 111-126. doi:<http://dx.doi.org/10.1515/humr.1994.7.2.111>
- Gerber, E. J. (2013). *The relations of social support and perceived stress to health-related quality of life in older adults* (Order No. AAI3550813). Available from PsycINFO. (1471982573; 2013-99220-322).
- Gonzalez, V.M. (2008). Recognition of mental illness and suicidality among individuals with serious mental illness. *Journal of Nervous and Mental Diseases*, 196, 727-734.
- Hageman, D. (2015). *The efficacy of positive humor as a coping mechanism for vicarious occupational stress experienced by emergency service providers* (Order No. AAI3631276). Available from PsycINFO. (1685826413; 2015-99100-069).
- Herzog, T. R., & Strevey, S. J. (2008). Contact with nature, sense of humor, and psychological well-being. *Environment and Behavior*, 40(6), 747-776.  
doi:<http://dx.doi.org/10.1177/0013916507308524>
- Hill, R. D. (2005). *Positive aging: A guide for mental health professionals and consumers* W W Norton & Co, New York, NY.
- Isen, A. M., Daubman, K. A., & Nowicki, G. P. (1987). Positive affect facilitates creative problem solving. *Journal of Personality and Social Psychology*, 52(6), 1122-1131.  
doi:<http://dx.doi.org/10.1037/0022-3514.52.6.1122>
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). The big five inventory—versions 4a and 54.
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative big five trait taxonomy. *Handbook of personality: Theory and research*, 3, 114-158.

- Johnco, C., Wuthrich, V. M., & Rapee, R. M. (2014). Reliability and validity of two self-report measures of cognitive flexibility. *Psychological Assessment, 26*(4), 1381-1387.  
doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1037/a0038009>
- Kashdan, T. B., Yarbro, J., McKnight, P. E., & Nezlek, J. B. (2014). Laughter with someone else leads to future social rewards: Temporal change using experience sampling methodology. *Personality and Individual Differences, 58*, 15-19.  
doi:<http://dx.doi.org/10.1016/j.paid.2013.09.025>
- Keene, J. R. (2012). Review of aging our way: Lessons for living from 85 and beyond. *Gender & Society, 26*(6), 956-957. doi:<http://dx.doi.org/10.1177/0891243212443589>
- Kennedy, K. M., Rodrigue, K. M., Devous Sr, M. D., Hebrank, A. C., Bischof, G. N., & Park, D. C. (2012). Effects of beta-amyloid accumulation on neural function during encoding across the adult lifespan. *Neuroimage, 62*(1), 1-8.
- Kissane, M., & McLaren, S. (2006). Sense of belonging as a predictor of reasons for living in older adults. *Death Studies, 30*(3), 243-258.
- Kleiman, E. M., & Riskind, J. H. (2013). Utilized social support and self-esteem mediate the relationship between perceived social support and suicide ideation: A test of a multiple mediator model. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 34*(1), 42-49. doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1027/0227-5910/a000159>
- Lecomte, T., Corbière, M., & Thérroux, L. (2010). Correlates and predictors of optimism in individuals with early psychosis or severe mental illness. *Psychosis: Psychological, Social and Integrative Approaches, 2*(2), 122-133.

- Levy, B. R. (2008). Rigidity as a predictor of older persons' aging stereotypes and aging self-perceptions. *Social Behavior and Personality*, 36(4), 559-570.  
doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.2224/sbp.2008.36.4.559>
- Lewis, J. P. (2013). The importance of optimism in maintaining healthy aging in rural alaska. *Qualitative Health Research*, 23(11), 1521-1527.  
doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1177/1049732313508013>
- MacRae, H. (2008). 'Making the best you can of it': living with early-stage Alzheimer's disease. *Sociology of Health & Illness*, 30(3), 396-412.
- Mann, L., Burnett, P., Radford, M., & Ford, S. (1997). The melbourne decision making questionnaire: An instrument for measuring patterns for coping with decisional conflict. *Journal of Behavioral Decision Making*, 10(1), 1-19.
- Martin, R. A. (2001). Humor, laughter, and physical health: Methodological issues and research findings. *Psychological Bulletin*, 127(4), 504-519.  
doi:<http://dx.doi.org/10.1037/0033-2909.127.4.504>
- Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the humor styles questionnaire. *Journal of Research in Personality*, 37(1), 48-75.  
doi:[http://dx.doi.org/10.1016/S0092-6566\(02\)00534-2](http://dx.doi.org/10.1016/S0092-6566(02)00534-2)
- Martin, M. M., & Rubin, R. B. (1995). A new measure of cognitive flexibility. *Psychological Reports*, 76(2), 623-626.  
doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.2466/pr0.1995.76.2.623>

- McDowell, I., Kristjansson, B., Hill, G. B., & Hebert, R. (1997). Community screening for dementia: The mini mental state exam (MMSE) and modified mini-mental state exam (3MS) compared. *Journal of clinical epidemiology*, *50*(4), 377-383.
- Meche, S. D. (2003). *An investigation of the relationship among life-skills, self-esteem, and well-being in adults* (Order No. AAI3075329). Available from PsycINFO. (620242943; 2003-95012-222). Retrieved from <https://www-lib-uwo-ca.proxy1.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com.proxy1.lib.uwo.ca/docview/620242943?accountid=15115>
- Moran, J. M., Rain, M., Page-Gould, E., & Mar, R. A. (2014). Do I amuse you? asymmetric predictors for humor appreciation and humor production. *Journal of Research in Personality*, *49*, 8-13. doi:<http://dx.doi.org/10.1016/j.jrp.2013.12.002>
- Mungas, D. (1991). In-office mental status testing: a practical guide. *Geriatrics (Basel, Switzerland)*, *46*(7), 54-8.
- Nemeroff, R. K. (1999). *Stress, social support, and psychological distress in late life: The moderating effects of perceived control and attachment* (Order No. AEH9930763). Available from PsycINFO. (619445781; 1999-95022-298).
- Olson, E. A., Fanning, J. T., Awick, E. A., Chung, H. D., & McAuley, E. (2014). Differential trajectories of well-being in older adult women: The role of optimism. *Applied Psychology: Health and Well-being*, *6*(3), 362-380. doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1111/aphw.12033>
- Overholser, J. C. (1992). Sense of humor when coping with life stress. *Personality and Individual Differences*, *13*(7), 799-804. doi:[http://dx.doi.org/10.1016/0191-8869\(92\)90053-R](http://dx.doi.org/10.1016/0191-8869(92)90053-R)

- Pezent, G. D. (2012). *Exploring the role of positive psychology constructs as protective factors against the impact of negative environmental variables on the subjective well-being of older adults* (Order No. AAI3471180). Available from PsycINFO. (1025846250; 2012-99100-578). Retrieved from <https://www-lib-uwo-ca.proxy1.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com.proxy1.lib.uwo.ca/docview/1025846250?accountid=15115>
- Rankin, K. P., Baldwin, E., Pace-Savitsky, C., Kramer, J. H., & Miller, B. L. (2005). Self awareness and personality change in dementia. *Journal of Neurology, Neurosurgery & Psychiatry*, 76(5), 632-639.
- Reff, R. C. (2007). *Developing the humor styles questionnaire-revised: A review of the current humor literature and a revised measure* (Order No. AAI3242122). Available from PsycINFO. (622020373; 2007-99010-108). Retrieved from <https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com/docview/622020373?accountid=15115>
- Rosenberg, M. (1965). Rosenberg self-esteem scale (RSE). *Acceptance and commitment therapy. Measures package*, 61, 52.
- Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The Gerontologist*, 37(4), 433-440.  
doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1093/geront/37.4.433>
- Rowe, J. W., & Kahn, R. L. (2015). Successful aging 2.0: Conceptual expansions for the 21st century. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 70(4), 593-596. doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1093/geronb/gbv025>
- Ruch, W., Proyer, R. T., & Weber, M. (2010). Humor as a character strength among the elderly: Theoretical considerations. *Zeitschrift Für Gerontologie Und Geriatrie*, 43(1), 8-12.  
doi:<http://dx.doi.org/10.1007/s00391-009-0080-2>

- Ruch, W., Rodden, F. A., & Proyer, R. T. (2011). Humor and other positive interventions in medical and therapeutic settings. In B. D. Kirkcaldy (Ed.), *The art and science of health care: Psychology and human factors for practitioners; the art and science of health care: Psychology and human factors for practitioners* (pp. 277-294, Chapter vii, 336 Pages) Hogrefe Publishing, Cambridge, MA.
- Ruggiero, F., Cortese, F., Lavazza, A., D'Urso, G., Di Nuzzo, C., Marceglia, S., ... & Ferrucci, R. (2019). Do Neurodegenerative Diseases Affect Creativity? Divergent Thinking in Frontotemporal Dementia and Parkinson's Disease. *Creativity Research Journal*, 31(1), 102-109.
- Sands, S. (1984). The use of humor in psychotherapy. *Psychoanalytic Review*, 71(3), 441-460. Retrieved from <https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com/docview/617117797?accountid=15115>
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the life orientation test. *Journal of Personality and Social Psychology*, 67(6), 1063-1078. doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1037/0022-3514.67.6.1063>
- Schwartz, E. A. (2007). *The use of humor in coping with breast cancer* (Order No. AAI3244620). Available from PsycINFO. (622023656; 2007-99012-082). Retrieved from <https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com/docview/622023656?accountid=15115>
- Skevington, S. M., & White, A. (1998). Is laughter the best medicine? *Psychology & Health*, 13(1), 157-169. doi:<http://dx.doi.org.proxy1.lib.uwo.ca/10.1080/08870449808406139>

- Slagle, C. (2012). *Psychometric construction and validation of a measure of positive aging* (Order No. AAI3482552). Available from PsycINFO. (1171912488; 2012-99180-363). Retrieved from <https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com/docview/1171912488?accountid=15115>
- Solomon, J. C. (1996). Humor and aging well: A laughing matter or a matter of laughing? *American Behavioral Scientist*, 39(3), 249-271.  
doi:<http://dx.doi.org/10.1177/0002764296039003004>
- Statistics Canada. 2017. *Canada at a Glance 2017*. Statistics Canada Manual no. 12-581-x. Ottawa, Ontario. March 31. <https://www.statcan.gc.ca/pub/12-581-x/2017000/h-s-eng.htm> (accessed November 8, 2017).
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the Presence of and Search for Meaning in Life. *Journal of Counseling Psychology*, 53, 90.
- Tombaugh, T. N., & McIntyre, N. J. (1992). The mini-mental state examination: a comprehensive review. *Journal of the American Geriatrics Society*, 40(9), 922-935.
- Toyokawa, N. (2013). *Trajectories of social support in later life: A longitudinal comparison of socioemotional selectivity theory with dynamic integration theory* (Order No. AAI3528631). Available from PsycINFO. (1417862505; 2013-99130-465).
- Valliant, P.M. (2012). *Life after 50: The road to longevity*. Minneapolis, MN: Mill City Press.

- Vandergriff, D. H. (2008). *Optimism associations with well-being indicators among older people in the united states* (Order No. AAI3288886). Available from PsycINFO. (621727853; 2008-99091-197). Retrieved from <https://www-lib-uwo-ca.proxy1.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com.proxy1.lib.uwo.ca/docview/621727853?accountid=15115>
- Walker, S., Richardson, D. S., & Green, L. R. (2000). Aggression among older adults: The relationship of interaction networks and gender role to direct and indirect responses. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression*, 26(2), 145-154.
- Walter, M., Hänni, B., Haug, M., Amrhein, I., Krebs-Roubicek, E., Müller-Spahn, F., & Savaskan, E. (2007). Humour therapy in patients with late-life depression or alzheimer's disease: A pilot study. *International Journal of Geriatric Psychiatry*, 22(1), 77-83.  
<http://dx.doi.org.proxy1.lib.uwo.ca/10.1002/gps.1658>
- Wang, L., & Shi, Y. (2008). Social support and mental health of the empty-nest elderly people in urban area. *Chinese Mental Health Journal*, 22(2), 118-122. Retrieved from <https://www-lib-uwo-ca.proxy1.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com.proxy1.lib.uwo.ca/docview/622132785?accountid=15115>
- Westburg, N. G. (2003). Hope, laughter and humor in residents and staff at an assisted living facility. *Journal of Mental Health Counseling*, 25(1), 16-32.  
[doi:http://dx.doi.org/10.17744/mehc.25.1.g128feq7x21xxbfe](http://dx.doi.org/10.17744/mehc.25.1.g128feq7x21xxbfe)

- Williams, R. S. T. (2001). *Use of humor in coping with stress* (Order No. AAI9984229). Available from PsycINFO. (619710389; 2001-95003-127). Retrieved from <https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com/docview/619710389?accountid=15115>
- Ye, R., Zhang, M., & Xu, S. (2007). Influence of social networks and social support on the QOL of retired elderly patients. *Chinese Journal of Clinical Psychology, 15*(6), 584-587. Retrieved from <https://www-lib-uwo-ca.proxy1.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com.proxy1.lib.uwo.ca/docview/622124850?accountid=15115>
- Yoder, M. A., & Haude, R. H. (1995). Sense of humor and longevity: Older adults' self-ratings compared with ratings for deceased siblings. *Psychological Reports, 76*(3), 945-946. doi:<http://dx.doi.org/10.2466/pr0.1995.76.3.945>
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*(1), 30-41. doi:[http://dx.doi.org.proxy1.lib.uwo.ca/10.1207/s15327752jpa5201\\_2](http://dx.doi.org.proxy1.lib.uwo.ca/10.1207/s15327752jpa5201_2)