Humor and Aging – A Mini-Review

Gil Greengross

Department of Anthropology, University of New Mexico, Albuquerque, N. Mex., USA

Key Words

Humor · Laughter · Aging · Humor production · Humor appreciation · Humor processing

Abstract

Humor is one of the most important human activities, one that is enjoyed daily by people in every culture and at every age. However, very little is known about how aging affects humor experiences. Research suggests that elderly people enjoy humor more than younger people, but they have increasing difficulties in understanding jokes. Several cognitive mechanisms that may help explain this trend are discussed. Also, the amount of laughter exhibited by the elderly is smaller compared to young adults. In addition, the older population seems not to enjoy aggressive types of humor as much as the younger ones, and the elderly are especially sensitive to jokes referring to old age. Because most studies are cross-sectional, we cannot ignore possible cohort effects that might influence age differences in humor production and humor appreciation. Several future directions are mentioned with the hope for further research on the subject to follow.

Copyright © 2013 S. Karger AG, Basel

Enjoying and producing humor are among the most common human activities, attributes that largely define humans and occupy a large part of people's lives [1, 2]. Humor is a ubiquitous phenomenon, sought after and

enjoyed by individuals of all ages and in every culture in the world. There are many studies about the developmental aspects of humor, from infancy through adolescence and adulthood, but relatively little research is devoted to the study of humor with elderly populations and the relationship between humor and aging. There are many questions regarding the changing experiences and uses of humor as people age that have been largely ignored by humor researchers and remain unanswered. Humor has many functions in an individual's life. Do all of these functions change throughout the lifespan, or do some change more than others? For example, humor as a coping mechanism might be a more important function to the elderly population than to young adults. Also, are there any differences in the enjoyment or production of humor as a function of age? Can humor contribute to healthy aging?

Sense of humor is not a unified concept and includes social, developmental, emotional, cognitive, and biological aspects, all interacting with each other [1]. Moreover, when discussing humor, it is important to specify what aspect of humor is being considered. Humor can be seen as a personality trait, a habitual behavior, a temperament, an ability, or an attitude, each with its own unique characteristics and large individual differences [1, 3–5]. The paucity of research on humor and aging does not address many of these multifaceted aspects of humor, but nonetheless, some preliminary results are interesting and could lead to important insights about how humor and aging interrelate.

Humor Processing

Many studies that examine the relationship between humor and aging focus on one prominent humor theory called the incongruity-resolution theory [1, 6]. According to the theory, humor emerges from two incompatible parts that at first do not seem to make sense, but when the incongruity is resolved, the humor is appreciated. The following joke exemplifies the theory:

O'Reilly was on trial for armed robbery. The jury came out and announced, 'Not guilty.' 'Wonderful', said O'Reilly, 'does that mean I can keep the money?' [6].

The punch line of the joke implies that O'Reilly is the robber, which is incongruous with the setup that found him not guilty of the robbery. Since O'Reilly cannot be both guilty and not guilty at the same time, there needs to be a resolution to the incongruity. The resolution comes from realizing that the jury's verdict can differ from the actual events.

Many studies employ such incongruous humor to test for both humor comprehension and humor production ability. Subjects are often given a series of jokes and then have to explain why they are considered funny, essentially asking them to recognize the incongruity in the joke (though not necessarily using this term). In other instances, subjects are given the setup of a joke and are asked to choose the correct punch line from a list of sentences.

One study aiming to test the effect of aging on humor compared the responses of young and elderly subjects [7]. Humor comprehension was assessed by asking subjects to rate a series of humorous and neutral statements. Humor production ability was measured by presenting subjects with jokes from which the punch lines had been removed, and asking them to choose the right ending from a list of sentences. Participants were divided into two groups: the aged group, 20 high-functioning and cognitively intact elderly subjects 60 years of age and older (mean age = 73), and 17 subjects that comprised the young group (mean age = 28.8). The results showed that subjects in the aged group perceived both humorous and neutral statements as funnier than the young group. This difference was not due to lack of understanding the jokes, as the elderly subjects were able to differentiate between the humor and the neutral statements just as the young subject did. Thus, the elderly population showed no slowness in emotional response to the jokes and actually enjoyed the humor more than the young group. However, the aged group did make significantly more errors in the joke completion task by choosing more wrong endings to the jokes, compared to the young group. Elderly subjects

also made similar mistakes with cartoons, by choosing the wrong cartoon in a task that asked them to identify funny cartoons from non-funny ones. In addition, the researchers presented the elderly group with a series of cognitive tests and found a significant correlation between performance on the joke completion test and working memory and verbal abstract ability tests. Thus, a decline in certain cognitive abilities might impair humor production ability, while not affecting understanding of jokes. One possible explanation for the decline in humor production ability is task difficulty, where producing humor is a more difficult task than distinguishing between humor and non-humor statements. The frontal lobe is likely responsible for this decline, especially the right frontal region [8]. Six patients who suffered from damage to this region performed poorly on all humor tests, compared to the aged sample. Thus, it is possible that a slow decline in frontal lobe functioning is responsible for the impairment in the cognitive abilities that influence humor production ability, while enjoyment of humor stays intact.

In a study aimed to replicate and extend Shammi and Stuss's [7] findings, Mak and Carpenter [9] compared 41 older adults (mean age = 78.3), free of any cognitive deficits, to a younger group of students (mean age = 19.8). Subjects completed two humor completion tasks, one which required them to find the right punch line for a joke from a list of sentences, and a similar nonverbal task where they had to choose the funny ending cartoon to a captionless comic strip, from four possible alternatives. In addition, subjects also completed a series of cognitive, intelligence and memory tests. Consistent with the previous study, older adults made more mistakes than the younger adults by choosing the wrong punch line for the jokes. Older adults also made more errors on the nonverbal cartoon completion task than the younger adults. As expected, younger adults performed better in the cognitive tests that assessed cognitive flexibility, abstract reasoning, and short-term memory, and also had better verbal intelligence scores than the older adults. The worse the older adults performed on the cognitive tests, the poorer their scores were on both humor completion tasks. Interestingly, no such association was found among the younger adults. This study showed that for older adults, a decrease in the performance of both verbal and nonverbal humor tasks was associated with a decline in cognitive ability. Interestingly, only nonverbal short-term memory deficiency was associated with poor performance on the nonverbal humor task, while performance on the verbal short-term memory test was not related to performance on the verbal humor task. The authors suggest that be-

cause nonverbal humor requires the translation of visual images to imaginal and verbal code, the task is more difficult and necessitates more short-term memory than when processing verbal humor that involves only a verbal code. Since older adults are known to exhibit more difficulties in picture processing than language processing [10], it is not surprising to find similar difficulties manifesting themselves in processing verbal and nonverbal humor.

One possible explanation for the decline in the ability to understand jokes could be due to diminished capacity for Theory of Mind, the ability to understand other people's mental states and see the world through their eyes. This is often referred to as mentalizing, and a mentalizing impairment could hinder the ability to understand humor. In one study, adult subjects older than 60 years showed not only a decline in the ability to select the correct punch lines of jokes compared to younger subjects, but also had more trouble explaining the behaviors of the characters in the jokes, meaning that their mentalizing abilities were impaired [11]. The older subjects did not differ from younger subjects in non-mentalistic fact questions or general intelligence, suggesting that deficits in mentalizing ability is the key to diminished cognitive ability that affects humor processing and is responsible for reduced humor comprehension and appreciation, especially for incongruity-resolution type of jokes.

Humor Appreciation and Comprehension of Jokes

One of the most consistent findings about humor and aging is that humor appreciation increases with age, but at some point, roughly around 60 years of age, enjoyment of humor starts to decline [e.g. 11]. In addition, while humor appreciation increases with age, comprehension of humor declines [12]. It has been suggested that there is an inverse U relationship between cognitive demands and humor appreciation [13, 14]. Typically, jokes with an intermediate level of difficulty are considered the funniest, while jokes that are too easy or too hard to understand are less funny. Jokes that are too easy to understand do not stimulate the mind and hence, lose their allure. On the other hand, when jokes are too difficult to comprehend, i.e. the cognitive demands are high, individuals have a hard time seeing the humor in them and therefore do not consider them funny. Early in life, both appreciation and comprehension of jokes increase as children develop their cognitive ability. At about grade 4, appreciation of humor starts to decline, even though comprehension of

humor still increases, possibly because the jokes are not sophisticated enough and too easy to understand. For elderly people who experience an overall decline in their cognitive abilities, jokes become harder and harder to understand as they age, which is associated with a greater appreciation of humor, as the jokes are now more challenging [12]. At some point, the humor becomes too difficult to understand, placing a heavy cognitive demand on aging individuals, which might lead to decreased appreciation of jokes. It is important to note that all the studies conducted on the relationship between appreciation and complexity of humor are either correlational or use cohort effects, which makes it difficult to determine the direct cause of increase in humor appreciation.

Different types of humor might show different patterns of change in appreciation with age. In one study, researchers assessed age differences in humor appreciation in two types of humor: incongruity plus resolution (the ability to resolve certain explicit or implicit incongruity in a joke or a cartoon) and nonsense humor (jokes with no resolution, partial resolutions, or new incongruities) [15]. The study included 3,057 men between 14 and 66 years of age, and 1,235 women aged 14–54. Subjects were shown 20 jokes and cartoons, half with incongruity-resolution humor and half with nonsense humor. The results showed that while adolescent subjects appreciated both types of humor with the same degree of funniness, at about age 20 the level of appreciation of both humor types started to change. Enjoyment of incongruity-resolution humor increased progressively with age, especially after the age of 40, while perceptions of nonsense humor showed a steady decline in funniness with age, with a sharper decline after the age of 40. These changes were also correlated with conservative social attitudes. Individuals with more conservative views tended to like jokes where the incongruity was resolved and dislike nonsense humor, whereas more liberal individuals showed the reverse trend, preferring nonsense humor over incongruity-resolution. Since conservative attitudes are positively correlated with age, it is hard to tell whether humor tastes change with age, or if older cohorts are more conservative in their views compared to younger adults, which would also affect their humor preferences.

Laughter

Though studies show that the elderly population enjoys humor more than younger people, the actual amount of laughter declines with age. One study with 80 subjects'

ages 17–79 found that frequency of laughter was negatively correlated with age [16]. Most of the decline occurred in the evenings, when elderly people tended to laugh half as much as the young population. The decline was also more prominent among elderly women. Younger women, under the age of 24, laughed on average 22.7 times a day, whereas women over 60 years of age laughed only 11.7 times a day. For men, there was a similar decline in laughter during the evenings among the older adults, but elderly men did laugh more during the mornings, compared to younger men. It is possible that the decline of laughter during the evenings among the elderly is due to a lack of social interaction at that time, as most laughter occurs in the presence of and interacting with others. The fact that older people tend to go to sleep earlier than younger adults and thus have less time to laugh, may also explain the decline in laughter in the evenings among the elderly.

Functions of Humor

Humor is often used to deal with stress and life's adversities, and there is some evidence suggesting that elderly people tend to use humor as a coping mechanism more often than the younger population [17]. Another study compared 370 young subjects (mean age = 16.9) to 218 adults (mean age = 49.7) on several everyday uses of humor [18]. The results showed that compared to the younger group, the older subjects scored lower on affiliative humor, a style of humor that promotes social bonds, and puts others at ease through telling jokes, saying funny things, laughing with others, and not taking oneself too seriously. This result might reflect weaker social networks and less involvement in social activities for the older population. Interestingly, older women were more likely to engage in self-enhancing humor, a coping humor style that involves the propensity to see the funny side of life even in adverse and stressful times, compared to the younger women. The opposite was true for men, where younger men tended to use self-enhancing humor more often than the older men. In addition, younger subjects used aggressive humor more often than the older subjects, a type of humor which is used to ridicule others through put-downs, mockery, and teasing, and is typically employed to enhance one's social status at the expense of the victimized individual (as in other-deprecating humor) or group (as in sexist or racist humor).

Negative Aspects of Humor

Aggressive humor is an example of a negative type of humor which is used to disparage others. Humor is usually considered a positive trait, but not all uses of humor are necessarily benevolent. Sometimes humor is used to put-down, tease, ridicule, and make a mockery of other people. In recent years, there have been studies showing that some people are more prone than others to fear being the target of negative humor. People vary in the degree they fear being disparaged by others or being the butt of a joke, a phenomenon called gelotophobia [19]. It is believed that gelotophobia emerges early in life, typically in response to real experiences of being laughed at. One study aimed to examine how elderly people cope with the possibility of being laughed at when the jokes target age-related vulnerabilities [20]. 148 subjects ranging from 30 to 92 years of age (mean age = 64.3) participated in the study. They completed questionnaires measuring gelotophobia, as well as two other related concepts, gelotophilia, the joy of being laughed at, and katagelasticism, the joy of ridiculing others. The results showed that individuals who scored high on gelotophobia were specifically fearful of others joking about their age. No correlation was found between either gelotophobia or gelotophilia with age, possibly because the sample did not include younger participants who typically score high on both scales. However, the results do suggest that both the fear of being laughed at and laughing at others' expense increase with age for specific situations, where age-related vulnerabilities are the cause of ridicule. It is interesting to note that there is some evidence that elderly people tend to have negative attitudes toward humorous people in general (though they do have more appreciation toward humor overall) [17]. Taken together, these studies suggest that aging increases the sensitivity to other people's sense of humor and the fear of being laughed at, especially humor that invokes cues of age. Elderly people may enjoy humor more, but they want to do it in their own terms.

Long-Term Effects of Humor

Most research on humor and aging compared individuals from different ages on various humor domains. These kinds of cross-sectional studies are susceptible to cohort effects, where people from different generations are influenced by unique life experiences, demographic trends, and social norms. It is possible that cohort effects influence humor experiences and are responsible for the specific types of humor that people enjoy. For example,

most of the scales that are used to assess sense of humor were constructed in the last 30 years, with questions and tasks reflecting certain cultural and cohort norms that are part of everyday humor experiences. In addition, humor becomes more and more visible in popular media, and certain types of humor that were considered taboo in the past are becoming more mainstream today. For example, sexual jokes were inappropriate for use in public broadcasts but are much more common these days. Because of that, it is difficult to determine whether observed differences in humor preferences and humor usages among disparate age groups are due to age effects alone, or are influenced by the fact that people from different generational cohorts experience humor differently.

To better study the topic of humor and aging, it is best to utilize longitudinal studies that can follow changes in humor production and appreciation within the same cohort group. Unfortunately, these studies are rare, and there is no study to date that exclusively focused on humor. However, one longitudinal study looked at the possible effects of a good sense of humor in early childhood on the physical health of the individual later in life. The Terman life-cycle study followed a large number of highly gifted individuals over many decades, and found that those who were rated as having a higher sense of humor as children by their parents and teachers were more likely to smoke and consume alcohol as adults and also died at a younger age as compared to those with less humor [21, 22]. These are surprising findings that go against the popular belief that humor is beneficial for physical health. However, it is hard to determine the cause of the poor health of people who had a good sense of humor as children. A likely explanation is that because of their generally less serious perspective, high humor and more cheerful individuals may view health risks less seriously and consequently engage in more risky behaviors, compared to the less cheerful individuals. These findings are consistent with previous research showing that individuals with a greater sense of humor tend to engage in less healthy lifestyle behaviors. For example, in one longitudinal study, Kerkkanen et al. [23] found that higher scores on some sense of humor scales were associated with greater obesity, increased smoking, and greater risk factors for cardiovascular disease, among a sample of 53 Finnish police officers. In another study about entertainers' personality and lifestyle, Rotton [24] found that comedians and humor writers, as well as serious entertainers and writers, died younger than individuals who achieved fame in other areas, as documented in the obituaries of *Time* and *Newsweek* magazines. It is possible that entertainers, such as

comedians, live a more intense life, and are exposed to stress and other risks that could shorten their lives. This stress could also lead them to adopt an unhealthy lifestyle of smoking and drug use that could be detrimental to their health. Despite the evidence suggesting the opposite, we cannot completely rule out the possibility that humor might have positive long-term effects on the elderly population and could potentially positively affect their physical and mental health later in life. It is also important to note that many claims about health benefits of humor are exaggerated, and there is a large discrepancy between the common perceptions of humor and health and the scientific research on the topic [see 25 for a review].

Conclusion

The results of various studies show that a decline in cognitive abilities associated with aging influences various aspects of humor comprehension and humor production ability. While aging might hinder the ability to produce humor, understanding humor is less affected by age, and jokes are even perceived to be funnier. Research also suggests that the elderly population uses humor as a coping mechanism (women only), and they are more sensitive to humor that makes reference to age. However, relatively little is known about the mechanisms that are involved in those effects and how they may change over time, and the cognitive processes that alter elderly people's perceptions about humor are largely unknown. Especially missing are studies that focus on the daily uses of humor among the elderly and how appreciation and production of specific types of humor change with age.

When asked to describe what constitutes successful aging, elderly people mention a sense of humor as one of the most important virtues [26]. Humor is an everyday activity that has a strong impact on people at all ages. The ability to enjoy humor and the diverse ways it is consumed can reveal important facets of the aging process and has the potential to positively affect healthy aging. The high cognitive demands that humor appreciation and production require might also help delay the cognitive decline associated with aging, similar to other cognitive activities that were found to help thwart the decline in cognitive abilities among the elderly [27, 28]. Unfortunately, little attention has been directed to studying the changing effects and functions of humor over the lifespan. Hopefully, researchers will devote more attention to this important aspect of human life and facilitate our understanding of both humor and aging.

References

- 1 Martin RA: *The Psychology of Humor: An Integrative Approach*. London, Elsevier Academic Press, 2007, p 446.
- 2 Apte ML: *Humor and Laughter: An Anthropological Approach*. Ithaca, Cornell University Press, 1985.
- 3 Feingold A, Mazzella R: Psychometric intelligence and verbal humor ability. *Pers Individ Dif* 1991;12:427–435.
- 4 Ruch W: The sense of humor: explorations of a personality characteristic; in Raskin V, Ruch W (eds): *Humor Research*, vol 3. Berlin, de Gruyter, 1998.
- 5 Greengross G, Miller GF: Humor ability reveals intelligence, predicts mating success, and is higher in males. *Intelligence* 2011;39:188–192.
- 6 Suls JM: A two-stage model for the appreciation of jokes and cartoons: an information-processing analysis; in Goldstein JH, McGhee PE (eds): *The Psychology of Humor: Theoretical Perspectives and Empirical Issues*. New York, Academic Press, 1972, pp 81–100.
- 7 Shammi P, Stuss DT: The effects of normal aging on humor appreciation. *J Int Neuropsychol Soc* 2003;9:855–863.
- 8 Shammi P, Stuss DT: Humour appreciation: a role of the right frontal lobe. *Brain* 1999;122:657–666.
- 9 Mak W, Carpenter BD: Humor comprehension in older adults. *J Int Neuropsychol Soc* 2007;13:606–614.
- 10 Ducheck JM, et al: Inhibitory processes in young and older adults in a picture-word task. *Aging Neuropsychol Cogn* 1995;2:156–167.
- 11 Uekermann J, Channon S, Daum I: Humor processing, mentalizing, and executive function in normal aging. *J Int Neuropsychol Soc* 2006;12:184–191.
- 12 Schaier AH, Cicirelli VG: Age differences in humor comprehension and appreciation in old age. *J Gerontol* 1976;31:577–582.
- 13 Zigler E, Levine J, Gould L: Cognitive challenge as a factor in children's humor appreciation. *J Pers Soc Psychol* 1967;6:332–336.
- 14 McGhee PE: Children's appreciation of humor: a test of the cognitive congruency principle. *Child Dev* 1976;47:420–426.
- 15 Ruch W, McGhee PE, Hehl FJ: Age differences in the enjoyment of incongruity-resolution and nonsense humor during adulthood. *Psychol Aging* 1990;5:348–355.
- 16 Martin RA, Kuiper N: Daily occurrence of laughter: relationships with age, gender, and type a personality. *Humor: Int J Humor Res* 1999;12:355–384.
- 17 Thorson JA, Powell FC: Women, aging, and sense of humor. *Humor: Int J Humor Res* 1996;9:169–186.
- 18 Martin RA, et al: Individual differences in uses of humor and their relation to psychological well-being: development of the humor styles questionnaire. *J Res Pers* 2003;37:48–75.
- 19 Titze M: Gelotophobia: the fear of being laughed at. *Humor: Int J Humor Res* 2009;22:27–48.
- 20 Platt T, Ruch W: Gelotophobia and age: do disposition towards ridicule and being laughed at predict coping with age-related vulnerabilities? *J Pediatr Matern Family Health Chiropract* 2010;52:231–244.
- 21 Friedman HS, et al: Does childhood personality predict longevity? *J Pers Soc Psychol* 1993;65:176–185.
- 22 Martin LR, et al: A life course perspective on childhood cheerfulness and its relation to mortality risk. *Pers Soc Psychol Bull* 2002;28:1155–1165.
- 23 Kerkkanen P, Kuiper NA, Martin RA: Sense of humor, physical health, and well-being at work: a three-year longitudinal study of Finnish police officers. *Humor: Int J Humor Res* 2004;17:21–35.
- 24 Rotton J: Trait humor and longevity: do comics have the last laugh? *Health Psychol* 1992;11:262–266.
- 25 Martin RA: Humor, laughter, and physical health: methodological issues and research findings. *Psychol Bull* 2001;127:504–519.
- 26 Bowling A, Dieppe P: What is successful ageing and who should define it? *BMJ* 2005;331:1548–1551.
- 27 Wilson RS, et al: Participation in cognitively stimulating activities and risk of incident Alzheimer disease. *JAMA* 2002;287:742–748.
- 28 Ball K, et al: Effects of cognitive training interventions with older adults. *JAMA* 2002;288:2271–2281.