Subliminal mere exposure effects on the ageist attitude change among young adults

* Shamala Ramasamy  
International Medical University, Malaysia  
ShamalaRamasamy@imu.edu.my

Sonia Khodabakhsh  
Universiti Tunku Abdul Rahman, Malaysia

ABSTRACT

Ageism is a concept of age stereotype, in which an ageist attitude dictates how young people perceive the old. A negative ageist attitude gravitates to discrimination and condemnation towards the aged. Stereotypes are reinforced by frequent exposure to media contents. Since media contents have a significant impact on individual’s attitude, this experimental research aims to study the subliminal media in posing change on the ageist attitude of young adults between ages 18 and 25, where such attitude change is due to mere exposure effect (MEE). In contrast to the norm of past studies using explicit self-report tests, this study delves into the implicit element of ageist attitude conducted using an experimental approach. Data was collected from 72 young adults as they are highly exposed to contents of the media frequently. Participants were randomly assigned to positive and negative media stimulus groups. Results of paired t-test verified the hypothesis that both positive and negative subliminal contents have a large effect on the ageist attitude change of the participants. When young adults are exposed to positive interventions, their perception positively affects ageist attitude and vice versa. Thus, findings imply that attitudes of young adults can be altered by media contents.

Keywords: Ageist, ageism, mere exposure effect, stereotypes, subliminal
INTRODUCTION

Malaysia has jumped onto the bandwagon of the ageing population. Malaysian population statistics reports show that the number and proportion of those aged 60 years and above increased gradually from 5.2% in 1990 to 6.2% in 2000 and 8.0% in 2010. However, population projections indicate that the tempo of the ageing population will accelerate in the next few decades. Malaysia will become an ageing nation by 2030 where 14% of the population will be 60 and above, which will increase further to 24% in 2050 (Samad & Mansor, 2017). Thus, the growing number of the elderly in Malaysia underlines the need for a healthy relationship between the younger generation and the older generation, which is essential for both youth and elderly well-being and life satisfaction (Khodabakhsh, 2022; Radhi & Arumugam, 2019).

Elderly people used to be regarded as wise and knowledgeable individuals, but with the rise of technology and active globalisation, young people have turned to the media for information and knowledge and have started pigeonholing people into race, gender and age (Nelson, 2016).

Contrary to the Eastern culture, which values filial piety, a systematic review revealed that a negative connotation towards the elderly still exists (North & Fiske, 2015). The media also reinforces the notion that ageism is predominantly a problem among the elderly (Bratt et al., 2018). A survey involving 83,000 people from 57 countries, conducted by World Health Organization (WHO) revealed that ageist attitudes towards the elderly are widespread and can negatively affect them physically and mentally. Besides, 60% of the elderly worldwide are not respected. The lowest levels of respect are reported in developed countries; hence, this promotes sub-conscious stereotypes (WHO, 2016).

However, ageism and discrimination towards senior citizens from youngsters are common societal issues in Malaysia and these unhealthy attitudes and behaviours to the elderly are widening the gap between the two generations. It was estimated that 58–80% of people aged 60 and above have experienced negative ageist attitudes and discriminative behaviours in their society based on their age (Dittmann, 2003). This stereotypical trend can be observed even in a collectivist society (Saluja et al., 2017; Dobrowolska et al., 2019).

Interestingly, the media which is commonly known as a powerful tool that shapes attitude and perception seems to be carrying messages that are, overtly or covertly, portraying both the positive and negative stereotypes of older adults in print, advertising, and entertainment (Brossoie, 2012; Gibron, 2013; Lowry, 2014; Raina & Balodi, 2014; WHO, 2014). With the depictions of the elderly both in their negative and positive stereotypical qualities by the media, questions arise whether such portrayals of older people in the mass media may indeed shape the attitudes of the younger generation towards the older generations.

LITERATURE REVIEW

Ageism

Ageism is regarded as prejudice, stereotypes, and discrimination against people based on their age (Ayallon & Tesch-Römer, 2018). It is undeniably clear that discriminative actions towards the elderly often occur as a result of the negative preconceptions or attitudes people have on the older generation. Such situations have led to worrying consequences such as worsening of memory, feelings of worthlessness, shortening of lives, decreased employability and abandonment by their children (Alcock et al., 2011; Brossoie, 2012; Choe, 2016; Dittmann, 2003; Kumar & Lai, 2011). On the contrary, university students in Turkey, studying in different fields have a positive attitude toward the elderly (Cinar et al., 2018).
Researchers noted that media effects on ageist attitude only began in the twenty-first century upon realising media as an impactful channel for communicating the meanings and experiences of ageing between the younger and older generations, where the younger generation is often seen subliminally primed to form a negative attitude towards the elderly (Asiret et al., 2017). Although media portrayals of ageing aim to reflect and combat the widespread ageism issue in society, it is hypothesised that it unconsciously reinforces the negative stereotypes of the younger generation towards the elderly (Milner et al., 2011), through subliminal mere exposure effect.

When ageing is depicted in a manner that appears positive or neutral — for example, to promote anti-ageing products, to introduce solutions to manage those with deteriorating health, or to bring out the importance of showing filial action to old parents, it indirectly exposes the younger generation to the negative qualities (Milner et al., 2011) of the old age despite its positive messages behind a media source. This is predicted by Milner et al. (2011) to lead younger people into denying ageing or enhancing their wish to withdraw themselves from ageing people due to unconscious fear or anxiety that they would become less competitive and have an undesirable appearance like the elderly if they do not keep a distance from them.

Negative age stereotyping is stronger than the positive, as it is portrayed three times higher than the positive stereotype. A study on young people’s attitudes towards older adults using direct and extended intergenerational contact suggests that other youngsters who may have a positive relationship with older adults are sufficient to transform their attitude (Drury et al., 2017). Thus, it is suggested that positive stereotyping should be encouraged to maximise the performance and perceptions among older individuals (Meisner, 2012).

Mere exposure effect

Mere Repeated Exposure Effect Paradigm, often known as Mere Exposure Effect (MEE) or familiarity effect, offers several ways of explaining why people tend to change their attitude, especially the novel attitude or preference to a stimulus that is more familiar to oneself. In MEE, an individual will be repeatedly exposed to a particular stimulus object or person, and later a surprising, emerging preference for the object or person will be observed. Such effect is depicted universally across cultures, nationality, and even demonstrated by different species including little mammals. The earliest research on MEE by Gustav Fechner (1876) was documented by Edward Titchener (Huffman, 2006), the father of structuralism perspective of psychology as – “the glow of warmth one feels in the presence of something familiar” (as cited in Falkenbach et al., 2010), where an individual takes a passive role of being influenced by the presence of a stimulus with either conscious or most of the time, unconscious awareness.

Theorists say that under MEE, the exposure stimuli themselves are so degraded and non-salient that the individual is not aware of the occurrence of attitudinal change towards liking the stimuli (Zajonc, 2001). There is no requirement for an individual to engage in any sort of behaviour, nor is he or she offered positive or negative reinforcement — the phenomenon of MEE occurs automatically if the stimulus person or object is made accessible to the individual’s sensory receptors (Falkenbach et al., 2010; Zajonc, 2001). The basis of this theory is that individuals who receive information through minimal and unplanned reinforced exposure, will instinctually attend to and be familiar with a stimulus, thereby exhibiting a direct attitudinal preference towards the stimulus person, aspect, or object. Therefore, this study probes into whether non-reinforced mere exposure to impersonal context will result in similar ageist attitudinal change, either negatively or positively upon exposure to relative types of media stimulus.
Subliminal and supraliminal mere exposure effect (MEE)

Mere exposure effect branches further into two channels to take place, namely subliminal MEE and supraliminal MEE (Kawakami & Yoshida, 2019). Subliminal MEE refers to the development of preference towards an exposed stimulus which is unaware of its presence or influence, whereas supraliminal MEE is vice versa where the influence of the stimuli towards one’s preference attitude occurs above the threshold of consciousness. Zajonc (2001) and Sakamoto (2007) indicated that stimuli perceived without conscious awareness, meaning through subliminal MEE, produces a larger exposure effect resulting in a greater preference effect observed compared to consciously perceived stimuli.

Two perspectives are taken by the cognitive approach and affective approach, respectively to explain the outweighed effectiveness of subliminal MEE. The cognitive perspective explains subliminal MEE with Misattribution of Perceptual Fluency Model whereby individuals tend to process stimuli in their minds more fluently after repeated unconscious exposure, and therefore feel that it is familiar. Since people do not know any plausible causes of the sense of familiarity felt due to the subliminal presentation, they will misattribute the cause of the familiarity to the liking of the stimulus, depending on the contextual factors relevant to the stimulus such as time, surrounding sound volume and environmental brightness. If individuals feel that they are more familiar with the new contextual factors related to the stimulus, for example, a darker background of a scenery painting, they will engage in effortless correction, revising the previous interpretation of discounting a stimulus, such as disliking the dark background.

On the other hand, the affective perspective of Hedonic Fluency Model terms MEE to occur as a result of no contextual factors but simply the innate liking of the stimulus itself after repeated exposure that promotes processing fluency. A high fluency may generate a positive affect because it indicates stimulus familiarity, which signals a benign, harmless situation, similar to the mechanism explained through classical conditioning.

MEE and ageism

Humans have a proclivity to form preferences simply because they are exposed to external stimuli. The more people are exposed to something they are familiar with, the more stereotyped they will become. The issue is that today’s youth are constantly exposed to a range of unpleasant stimuli, which leads to stereotyped behaviour. Ageism is also a form of stereotype. Hence, the concept of MEE which influences ageism is investigated in this study by employing media content. The hypothesis of the study is put to the test to confirm MEE’s theory, particularly on ageism using media contents. A methodological gap was discovered during the prior literature review. Using MEE theory, no experimental procedure was utilised to generate ageist attitude change.

Considering the possible effect of subliminal MEE of media, this study aims to answer two research questions: Is there a significant difference in ageist attitudes among young adults before and after being exposed to a positive media stimulus? Is there a significant difference in ageist attitudes among young adults before and after being exposed to a negative media stimulus?

METHODOLOGY

Sample

A total of 72 young adults participated in this study upon obtaining ethics approval from the Research Ethics Committee of the university. Random assignment into two groups
were administered using Statistical Package of Social Science (SPSS) version 25’s random number generator. The sample size was calculated for a 95% confidence interval according to the normal distribution table, 5% margin error, power .80. Hence, the calculation based on the formula yielded a minimum sample size of 32 participants.

**Ethical consideration**
Informed consent forms were filled up by the participants. Information collected were kept confidential and no risk was present to the participants. Withdrawal at any point of time during the experiment was allowed without any penalty. All responses from the participants were collected anonymously. There was no identifying information required from them and all data were reported as statistical averages to maintain confidentiality.

**Research design**
A pre-test and post-test design was adopted in this study as the aim is to determine whether post-ageist attitude scores increased or decreased from pre-ageist attitude scores upon exposure to positive or negative subliminal media stimulus. Two groups of treatments were formed in this experiment, i.e., exposure to positive and negative subliminal media stimuli.

**Materials**

**Ageism Attitude Scale (AAS)**
AAS was developed by Vefikuluçay (2008) and consists of 23 items in a 5-point Likert scale with a maximum score of 115 and minimum score of 23. Higher scores reflect a more positive attitude toward ageism, and lower scores indicate a negative attitude toward ageism. Cronbach's alpha reliability coefficient of the AAS was reported as 0.80 (Usta et al., 2012).

**Stimulus**
Content from newspapers, magazines, Facebook posts, television commercials, and movie scenes were used in a ten-minute media stimulus in the form of a PowerPoint slideshow for each group. The implicit ageist attitude-testing instrument used consisted of eight pairs of “character-adjective” word pairs (e.g., old people – ugly) embedded in fourteen pairs of distractors with a similar structure (e.g. children – cute). Four out of eight items were reversed scored. All items including distractor items were presented in PowerPoint slides by means of automatic transition with three second intervals for each item. The inter-rater validity of the instrument was established prior to administration. Participants completed the Ageism Attitude Scale before and after exposure to the prepared media.

**Procedure**
The study was conducted in a university lab setting among undergraduates. When each participant arrived, the researcher thoroughly briefed them through an informed consent form to ensure that this was a voluntary commitment. Participants were randomly assigned to either one of the groups of exposure.

Participants were exposed to the first round of implicit ageist attitude test, which was presented with three second intervals each. They were provided with one example of word pair (e.g., elderly – ugly) prior to the activation of the automatic slide show presentation. Based on the word pair shown, participants needed to evaluate quickly whether he or she agrees that the adjectives described the nouns associated. The answer sheet was then collected from participants to calculate the pre-ageist attitude scores for the eight items.
After that, the participants were exposed to a 10-minute media stimulus and a second round of ageist attitude test with a similar procedure. The item sequence was changed for the second round to counterbalance for any carry-over effect. The answer sheet was again collected to calculate the post-ageist attitude scores from the eight items. Finally, the participants were debriefed of their scores and the objective of the experiment, including the implicit nature of the instrument.

RESULTS

This experiment comprised 72 undergraduate participants, 30 of whom were males and 42 females. All of them belonged to the Malaysian Chinese ethnic group. The age of the participants ranged from 18 to 35 years old.

A paired sample t-test was used to analyse the experimental data to compare the means of two measurements taken from the same individual. Results demonstrated that there was a significant difference between the pre-test and post-test scores on ageist attitude between both groups, inferring that there is a change in the ageist attitude after exposure to positive stimuli (treatment). This signifies that exposure to positive content of media stimulus does positively affect the ageist attitude of the participants (Table 1). Participants demonstrated a more positive attitude towards the elderly after they were exposed to a positive media stimulus. A large effect size with $d = 3.25$ was revealed showing that the positive media stimulus has a large magnitude (Cohen, 1988) of impact on the ageist attitude change of the participants in a positive direction.

Table 1. Differences in ageist attitude scores upon exposure to positive subliminal media stimulus (N=36)

<table>
<thead>
<tr>
<th>Test</th>
<th>$M$</th>
<th>$SD$</th>
<th>$t$</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>81.05</td>
<td>4.69</td>
<td>−13.14**</td>
<td>35</td>
</tr>
<tr>
<td>Post-test</td>
<td>93.13</td>
<td>2.38</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ** $p < .001$ (2-tailed)

Whereas, for the negative stimulus, there was a significant difference between the pre-test and the post-test scores on the ageist attitude in the exposure to a negative media stimulus condition. This implies that exposure to negative media stimulus does negatively affect the ageist attitude of the participants (Table 2). However, a large effect size with $d = 1.69$ was discovered, showing that the negative media stimulus has a large magnitude (Cohen, 1988) of impact on the ageist attitude change among the participants.

Table 2. Differences in ageist attitude scores upon exposure to negative subliminal media stimulus (N=36)

<table>
<thead>
<tr>
<th>Test</th>
<th>$M$</th>
<th>$SD$</th>
<th>$t$</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>87.50</td>
<td>5.35</td>
<td>10.14**</td>
<td>35</td>
</tr>
<tr>
<td>Post-test</td>
<td>80.38</td>
<td>2.58</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ** $p < .001$ (2-tailed)

DISCUSSION

The evidence from this study suggests that exposure to a positive media stimulus changed an individual’s ageist attitude to positive. On the contrary, exposure to a negative stimulus...
decreased the individual’s ageist attitude to negative. This finding indicates that people’s attitude can be altered by the nature or content of media, supporting the hypothesis proposed in this study. This finding corroborates with that of previous studies whereby uses of media to transmit information has direct effects on attitudes, hence media is a source of implicit form of ageism (Ivan et al., 2020). One study found that people categorise themselves as “Us” vs “Them” in relation to ageism when analysed on social media (Ayalon, 2020). Another study found that a priming effect in the form of the avatar’s age can influence walking pace, product choice, and prosocial behaviour in virtual retail venues that are unrelated to the retail experience (Yoo, Peña & Drumwright, 2015).

Furthermore, previous studies have been consistent with these findings, which illustrate that exposure of media has the ability to change one’s attitude and govern one’s behaviours (Lane, 2011; Verrier, 2012). Nonetheless, this finding contradicts with a previous study which indicated that media has no effect in changing people’s attitude due to cognitive competition of information from difference sources, such as family and friends (Matamoros, 2011), which make information processing difficult and intuitive senses uncomfortable for the human mind. Therefore, no attitude change would be easily triggered by the media, which bombard the audience with multiple stimuli all at once through newspapers or television commercials.

In this experimental study, subliminal mere exposure effect (MEE), which is a type of unconscious psychological phenomenon that motivates related cognitive tasks, served as the underlying construct to guide the design of this experiment (Moreland & Topolinski, 2010). Therefore, this may explain why ageist attitude change can occur in impersonal media platforms, regardless of positive or negative contexts.

In addition to these possible reasons which explain the different levels of effect size of positive and negative context of treatment, the change is also predicted to be a result of self-fulfilling prophecy. As highlighted by literature, the younger generations display a tendency to deny ageing or enhance their wish to withdraw themselves from ageing due to unconscious fear or anxiety that they would become less competent and have undesirable appearance like the old, if they do not keep a distance from them (Milner et al., 2011). Stimulated by media, young audiences are reminded that they would become old. Hence, it becomes more acceptable, appealing, and comfortable to them when they are exposed to evidence that old age possess a brighter side as well, such as a healthy body. Furthermore, in a collective culture like Malaysia, where filial piety is highly valued, people would wish the elderly in their family to be healthier and function well as shown in the media. Hence, the positive information can be processed with a higher fluency by the mind when a positive effect of comfort is triggered.

Similarly, with regard to advertisements that promote gender stereotypes, Sriwimon (2017) echoed that negative gender stereotype occurs in media against political women in Thailand. Further, Shamim and Hassim (2021) found that although the gap of gender stereotype decreased in advertisements, repeated exposure is suggested instead of depending on mere observatory learning.

As a result of the outcomes of this experimental study, it is established that media content alters the ageist attitudes among youths when they are exposed to positive and negative stimuli. The takeaway lesson is that young people should be more aware of the frequent contents that they are exposed to, both favourably and adversely.

**Limitation**

As this is a simple pre-test and post-test trial, a control group was not warranted, hence the limitation of this study. It is proposed that for future studies, a control group to be included in the design of the experiment.
CONCLUSION

Ageism is a concept of stereotype on age. It could be either a positive or negative stereotype. Stereotype occurs depending on the media exposure or even daily observations where negative stereotypes may lead to discrimination. This study experimented on ageism among young adults towards the elderly by exposing them to the contents of media. Results reveal that when young adults are exposed to positive interventions, their perception does positively affect the ageist attitude and vice versa. Thus, the findings imply that young adult’s attitudes can be altered by the nature or content of the media.

Open Access: This article is distributed under the terms of the Creative Commons Attribution License (CC-BY 4.0) which permits any use, distribution and reproduction in any medium, provided the original author(s) and the source are credited.

References


---

**Shamala Ramasamy (Dr)**

is Programme Director and a senior lecturer in the Psychology Department of International Medical University. She is also a Member of the American Psychological Association and an international affiliate member of the Society for Industrial & Organizational Psychology, US. She holds a PhD in Education, Master in Industrial & Organizational Psychology and BSc. She is the project investigator for a Fundamental Research Grant Scheme (FRGS) grant funded by the government of Malaysia to conduct a validation study.

**Sonia Khodabakhsh (Dr)**

is a former assistant professor in the Psychology Department at Universiti Tunku Abdul Rahman, Malaysia. She is currently working as a clinical psychologist at Dynamics Psychological Practice in Singapore. She completed her PhD in Educational Psychology and Master in Clinical Psychology. She is a registered clinical psychologist in Malaysia and a member of the American Psychological Association and Singapore Psychology Society.