

Cultural Differences in the Perception of Health and Cuteness of Fat Babies

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Abstract

This study investigated whether concern about infant obesity has reached parents and the public. Two messages about the health of overweight babies were tested against a no-message control with Asian (n = 195) and American (n = 233) students and adults. The first message dismissed health concern about infant obesity arguing fat babies would slim down as they started to walk. The second message articulated pediatrician concern about future health problems linked to infant obesity. Compared to Americans, Asians showed more agreement that fat babies were unhealthy. Participants with low body appreciation showed more disapproval for fat babies. Angry response and disagreement with the message caused respondents to reject health recommendations. Most participants showed awareness that bigger is not better and that obese babies are not healthy. Educated, urban Asians and Americans had awareness of the health implications of fat babies. Infant obesity should be investigated with other socioeconomic/ethnic groups.

Key Words: Infant obesity, Healthy babies, Cultural perceptions of baby health; Body appreciation and perception of health

Introduction

Infant obesity has been linked with early childhood obesity and the onset of other psychological and physiological problems in later life (Paul et al., 2009; Stunkard, Berkowitz, Schoeller, Maislin, & Stallings, 2004; Taveras et al., 2009; Weiss & Caprio, 2005). Forty-three million children worldwide 5 years of age or younger are classified as overweight (World Health Organization, 2011). Formula feeding and early introduction of solid food have been linked with increased infant obesity (Davis et al., 2007; Gibbs & Forste, 2014; Quenqua, 2013). However, many parents continue to believe that bigger is better and do not show concern about overly fat babies (Eckstein et al., 2006; Scott, 2009; Sullivan, Leite, Shaffer, Birch, & Paul, 2011). Epstein and Wrotiniak (2010) describe family, community, and media environments in the U.S. as "obesogenic" encouraging consumption of unhealthy foods. Food and beverage advertising during hours that

young children watch television has been shown to promote fast foods, sweets, and fatty snacks more than healthy food options (Harris, Schwartz, & Brownell, 2010; Powell, Szczypka, Chaloupka, & Braunschweig, 2007; Weber, Story, & Harnack, 2006).

In order to assess attitudes about obesity in babies, two persuasive messages about health implications of infant obesity are tested. The first message dismisses concern about infant obesity as unreasonable whereas the second message argues that obesity prevention must begin in infancy. Three factors about obesity in babies are examined: a) cultural beliefs about infant obesity, b) whether participants' attitudes about their own bodies have any impact on their perceptions of infant obesity as problematic, and c) whether participant life stage affects attitudes about baby size. It is reasonable to argue that participants who have struggled with their own weight or who have a poor self-body image may show greater concern about obesity in babies prompting this question (Bessenoff

2006; Mendelson, Mendelson, & White 2001; Ogden & Clementi 2010). Will there be differences in the perception of health and cuteness of a fat baby based on the message read, participant status (student/adult), participant gender, and body size/body appreciation?

This study compares attitudes about obesity in babies between participants from Asia and the United States. One popular belief is that older people, especially Asians, are likely to think that a fatter baby is healthier (Cheung et al., 2011; Guan, 2008). For example, the traditional Chinese belief equated being overweight with prosperity and health (Wu et al. 2005). Today, while the percentage of obesity in China is relatively lower than in the U.S. (25% compared to 68%), one fifth of the world's obese people are Chinese (Day, Alfonso, Chen, Guo, & Lee, 2012). Thus, the following research questions are investigated. Will there be differences in the perception of the health/cuteness of fat babies between Asians and Americans? Compared to younger participants, do older people think that a fat baby is healthier and cuter?

The Cognitive Functional Model offers a framework to explain the impact of emotion on processing messages (Nabi, 1999; Nabi, 2003). In general, a health promotion message that contradicts beliefs held by the target audience may cause anger and is likely to motivate resistance to recommended action in the message. In contrast, people who show agreement with the content of a message are likely to be persuaded to follow recommendations prompting this question. Does disagreement and angry response toward health messages in this study have any impact on perception of baby health/cuteness?

Method

Participants and Procedures

The sample consisted of 428 participants (233 Americans, 195 East Asians). The US sample consisted of 172 students and 61 adults with ages ranging from 18 to 85. The mean age was 26 with 10% of the US sample over 50. There were 77 males, 152 females and 4 unidentified for gender. The student sample was gathered from service classes at a large university. The adult sample was comprised of university colleagues, staff members and their families, and also adults who belonged to a small social organization outside the university. Twenty percent of US participants had children.

The Asian sample was collected in China, Japan, and Korea. As there were no significant differences in mean scores for health and cuteness, the data from the three countries were aggregated for statistical power. Skewness and kurtosis of dependent

variables was checked before and after aggregating conditions and no changes were found (Curran, West, & Finch, 1996; Milligan, 1980). The Asian sample consisted of 195 participants with 72 students and 123 adults ranging in age from 19 to 72. The mean age was 35 with 15% of the Asian sample over 50. There were 92 males and 103 females. The Asian data was gathered from friends and family members using snowball sampling. Questionnaires were translated by three pairs of bilinguals into Korean, Chinese, and Japanese using the back-translation procedure and examination of cultural equivalence (Beaton, Bombardier, Guillemin, & Ferraz, 2000; Brislin, 1970). An approximately equal number of participants was drawn in the 3 Asian countries. Fifty-one percent of Asian participants were parents.

Participants received a questionnaire showing 8 babies of different races and body size. All were dressed in diapers or onesies showing full body poses and were around 9 months old. Participants were asked to select the cutest and fattest baby. Most respondents (98%) agreed that baby 8 was excessively fat. These results showed that the picture priming task was effective in causing participants to focus on baby size. Participants then either read one of two experimental messages about obesity in babies or went directly to the measures in the control condition which had no message induction. An equivalent number of participants were in each of the 3 conditions (2 experimental conditions and the control condition). The first message was developed by the authors based on discussions that they conducted with several mothers who claimed that even an excessively fat baby is not a problem as they generally tend to lose fat when they begin to walk (popular message). The popular message read:

Many people think that the health concern about fat babies is unnecessary and inappropriate. They think that fat babies are likely to thin out as they begin to walk and crawl. Many people agree that a fat baby is a healthy baby. People think that fat protects a baby from sickness, makes the baby strong, and improves the baby's immunity. Many people believe that larger is better when it comes to babies and large size indicates a healthy, thriving baby.

The second message developed from claims in published infant obesity research included recommendations from pediatricians that obesity in babies can lead to later health problems (pediatrician message) (Brown & Lee, 2012; McCormick, Sarpong, Jordan, Ray, & Jain, 2010; Roehr, 2011). The pediatrician message read:

Many people think that the health concern about fat babies is legitimate and appropriate. While most fat babies are likely to thin out as they begin to walk and crawl, some don't. Many people agree that a fat baby is an unhealthy baby. People think that obesity challenges a baby's immunity, makes the baby weak, and may cause the baby to get sick. Many people believe that infant obesity is a problem that can lead to future health and weight problems.

Key Measures

All items were measured with five-point Likert scales where a 1 indicated strong disagreement and a 5 indicated strong agreement. There were two dependent variables — perceptions of baby health and cuteness. AMOS 21 was used to assess unidimensionality of scales.

The *Fat Baby Health measure* consisted of six items developed by the authors. The six items were unidimensional with a reliability of .81. Sample items included: a) I think that a baby being fat has no impact on future health; b) A fat baby is thriving; and c) Parents should not be concerned if their baby is fat.

The *Fat Baby Cuteness measure* consisted of seven items developed by the authors from physical

features associated with infant cuteness identified in the developmental psychology literature (Sprenghelmeyer et al. 2009). The seven items were unidimensional with a reliability of .90. Sample items included: a) I think a fat baby is cute; b) I just want to hug a fat baby; and c) Roly-poly babies are so cute and cuddly.

Independent Variables

Cognitive and Emotional Response to the Message was measured with 2 items—to what extent the message was understood, and the level of agreement with the message. Three items measured emotional response to the message: This message makes me angry/is annoying/is offensive.

Participant Body Appreciation was measured with 8 items from the Body Appreciation Scale (Avalos, Tylka, & Barcalow, 2005). The scale was unidimensional with a reliability of .94. Sample items included: a) I respect my body; b) I feel good about my body; and c) On the whole, I am satisfied with my body.

Participant Body Size was measured with a single item: How would you describe your own body? (Very thin, Thin, Somewhat thin, Normal Size, Somewhat Chubby, Chubby, Very overweight). Means and standard deviations for all measures are reported in Table 1.

Table 1. Means and Standard Deviations by Message Conditions

	American students		American adults		Asian students		Asian adults	
	M	SD	M	SD	M	SD	M	SD
<i>Health Scale</i>								
Control condition	2.68	.49	2.78	.60	2.38	.68	2.82	0.71
Popular Message	2.88	.62	2.75	.45	2.38	.65	2.71	0.73
Pediatrician Message	2.85	.58	2.71	.49	2.54	.60	2.46	0.52
<i>Cuteness Scale</i>								
Control condition	3.36	.69	3.07	.54	3.26	.78	3.17	0.84
Popular Message	3.03	.80	2.83	.62	2.99	.64	3.26	0.76
Pediatrician Message	3.04	.83	2.79	.64	3.42	.47	3.01	0.69
<i>Other Variables</i>								
Body Size	3.54	.97	3.49	1.50	3.93	1.30	3.89	1.54
Body appreciation	3.99	.69	5.46	.96	4.11	1.20	4.16	0.09
Agreement with message	2.50	.63	2.49	.68	2.47	.85	2.29	0.84
Emotional response	2.93	.89	2.71	.90	2.98	1.11	2.96	1.03

Body Size and appreciation scores are based on 7-point Likert scales where 1 represents the low score and 7 the high score. All other mean scores are based on 5-point Likert scales where 1 is *strongly disagree* and 5, *strongly agree*.

Results

In response to the first research question, a 3 x 2 x 2 (condition by student/adult status by gender) ANCOVA was conducted with baby health as the

dependent variable. Covariates included participant body size and participant body appreciation. While there were no main effects for condition or status, the interaction between condition and status was significant, $F(2, 423) = 5.58, p < .01, \eta^2 = .03$. Both covariates showed

significant effects for baby health, $F(1, 423) = 50.75, p < .001, \eta^2 = .13$ for body size, and $F(1, 423) = 8.43, p < .01, \eta^2 = .06$ for body appreciation. These results showed that adults who read the pediatrician message showed significantly less agreement that fat babies are healthy compared to students. Participants with large body size and low body appreciation judged the fat baby to be less healthy.

A $3 \times 2 \times 2$ (condition by student/adult status by gender) ANCOVA was conducted with perception of infant cuteness as the dependent variable. Covariates included participant body size and participant body appreciation. A main effect was found for condition, $F(2, 419) = 3.27, p < .05, \eta^2 = .01$, for gender, $F(1, 419) = 8.94, p < .01, \eta^2 = .05$, and an interaction between condition and status, $F(2, 419) = 3.42, p < .05, \eta^2 = .02$. Overall, these results show that compared to adults, students thought that fat babies were cuter.

In response to the second and third research questions, there was a main effect for baby health by country $F(1, 426) = 11.641, p < .001, \eta^2 = .03$. There was also an interaction effect between age and country, $F(1, 426) = 4.61, p < .05, \eta^2 = .01$. Compared to Americans, Asian participants agreed that fat babies were less healthy. Compared to all other age groups, young Asians thought that fat babies were not healthy. Main effects were observed with age and country for perception of cuteness, $F(1, 426) = 4.19, p < .05, \eta^2 = .01$ and $F(1, 426) = 4.12, p < .05, \eta^2 = .01$, respectively. Compared to Americans, Asians thought that fat babies were cuter.

The final research question asked whether disagreement and anger with the message moderated perceptions of baby health and cuteness. Hierarchical linear regression was used to test moderation first for disagreement and then for angry response to the message (Aiken & West, 1991). The categorical message variable was dummy-coded for inclusion in the regression equation (Cohen, Cohen, West, & Aiken, 2013). Scores for disagreement and angry response to the message were mean-centered. Interaction terms between messages, disagreement and anger were created. Demographic information (status (student/adult), country, kids/no kids, age, gender) was entered into block 1. Dummy coded message induction and centered disagreement/anger with the message were entered into Block 2, and the interaction term between message and disagreement/anger was entered into block 3.

The interaction terms between message and disagreement were significant for both baby health and cuteness, $\beta = -.45, t = -7.14, p < .001$ and $\beta = -.23, t = -3.53, p < .001$ respectively. The models for health and cuteness were both significant, $F(8, 313) = 9.57, p <$

$.001, adj. R^2 = .18$ and $F(8, 313) = 4.93, p < .001, adj. R^2 = .09$ respectively. Simple slope analysis confirmed that disagreement with the message moderated the relationship between messages and perception of infant health and cuteness.

A second regression using the same procedure described above revealed interactions between message and angry response were significant for both health and cuteness, $\beta = .41, t = 5.34, p < .001$ and $\beta = .34, t = 4.36, p < .001$ respectively. The models for baby health and cuteness with anger were both significant, $F(8, 313) = 6.27, p < .001, adj. R^2 = .12$ and $F(8, 313) = 5.53, p < .001, adj. R^2 = .10$ respectively. Simple slope analyses confirmed that angry response to the messages moderated the impact of messages on perceptions of baby cuteness and health.

Discussion

Why should anyone be concerned about obesity in babies? Increasingly, pediatricians and other medical researchers have linked obesity occurring later in life to eating needs and habits acquired in infancy. In the past, the best predictor of future childhood obesity was the relative weight of the 2-year old (Paul et al., 2009). Evidence from controlled studies with infants as early as 3-months of age show that over-eating may begin early and lead to a lifetime of health problems (Campbell et al., 2013; Iannelli, 2013). Evidence shows that breast fed babies tend to be less obese and to have fewer health abnormalities in early childhood compared to formula-fed babies and babies introduced early to solid food (Bartok & Ventura, 2009; Brown & Lee, 2012; Davis et al., 2007; Gibbs & Forste, 2014).

One encouraging finding from this study is that pediatrician recommendations for the prevention of obesity in babies have reached public awareness. Participants in this study clearly understood that fat babies were not healthy. Obese babies tend to become overweight preschoolers often suffering from low self-esteem, health complications and the ridicule of others (Campbell et al., 2013: 28). Research in the US shows that economically challenged people tend to start babies on solid food before the fourth month of life as formula for a growing infant is relatively expensive and it is often challenging for a mother to continue breast feeding if she has to work to support her family (Peneau et al., 2011; Quenqua, 2013). This may contribute to large baby body size. Data obtained from a different socio-economic segment other than the sample in the current study might yield more public resistance to pediatrician recommendations about infant obesity compared to participants in this study.

Participants who described their own bodies as overweight showed relatively stronger agreement that a

fat baby was unhealthy compared to participants with normal weight. These results suggest that people struggling with weight worry about the health of obese babies because they may want to spare this child from problems that they have personally experienced. A small number of studies have claimed that Asians traditionally believe that being fat is considered as a sign of health and prosperity (Cheung et al., 2011; Guan, 2009; Wu et al., 2005). In contrast to this claim, this study showed that Asian participants reported the belief that fat babies were unhealthy to an even greater extent than American participants. Findings in the present study also suggest age difference in participants' perceptions about the health and cuteness of fat babies. Compared to older people, young adults thought fat babies were cuter. The results suggest the need for infant nutritional education targeting young adults.

This study tested the role of emotion in cognition (Nabi, 1999; Nabi, 2003). Both angry response and disagreement with health recommendations in the messages were shown to moderate the perception of baby health and cuteness. These emotionally-based moderators also affected participant willingness to follow health recommendations in the messages they read. Future studies might investigate the relationship between emotion and cognition in perceptions of obesity in babies and how this affects parental willingness to follow nutritional guidelines for healthy eating and weight in babies.

There are a few limitations for this study. The Asian sample was aggregated for statistical power. While the mean scores between the three groups of Asians were similar for health, Chinese participants thought the fat baby was cuter compared to Japanese and Koreans but this difference was not significant. It is possible that a larger sample from the three countries might have amplified this difference. The Asian sample had proportionately more adults than students while the reverse was true for the U.S. sample. However, trends reported in this study are similar for adults and students.

Another limitation is that participant body size was measured with a single item. This turned out to be an important variable for explaining perceptions of baby health. Further measurement of participant body perception and esteem would have helped to clarify this result. Out of respect for the privacy of university staff members and colleagues who agreed to participate in this study without any compensation, measures of participant negative body perceptions and weight were not taken.

Conclusions

The study showed that pediatrician recommendations about obesity in babies have been accepted by educated older adults and young people in Asia and the US. This result suggests that public awareness and concern with obesity has been extended across the life-span. It is possible that other segments of these populations may resist pediatrician recommendations that fat babies are not healthy. There was more overall agreement with the pediatrician message compared to the popular message; however, cases of strong disagreement/anger usually occurred with the pediatrician message resulting in rejection of these guidelines. Contrary to prevalent stereotypes about fat being as a sign of health for Asians, this study revealed that Asians showed more agreement that infant obesity was unhealthy compared to Americans. Overall, students thought that fat babies were cuter. People who expressed concern about their size or who reported low body appreciation showed greater concern about the health of fat babies. These results confirm that pediatrician recommendations about obesity prevention in babies have filtered into public awareness both in Asia and the U.S. A clear indication of a pediatric advisory shift regarding infant obesity is that in 2015, new US dietary guidelines will include recommendations about obesity prevention for infants and babies for the first time in history (Birch, Parker & Burns, 2011).

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Ethical Approval

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