Attitudes of Japanese Adults Toward Persons with Intellectual Disability: Effect of Perceptions Concerning Intellectual Disability

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Abstract: Parents of pupils who were attending schools in a medium-size city in Japan were surveyed (n = 2381). Perceptions and attitudes towards people with intellectual disability were investigated. The prevalence of people with intellectual disability in the population guessed by respondents was very small (median = 5/1000). Almost half the respondents believed the prevalence rate of persons with intellectual disability in their own future family would be lower than that in the general population. Perceptions most strongly associated with attitudes were the estimated proportion of hereditary cause, and the possibility of having a person with intellectual disability in one’s future family. Some important incorrect perceptions were based on wrong information and may be amenable to change by teaching.

Some previous studies of perceptions concerning people with intellectual disability used a semantic differential technique (Stainback & Stainback, 1982; Williams, 1986a). Others asked for definitions of intellectual disability (Budoff, Siperstein, & Conant, 1979; Caruso & Hodapp, 1988; Nursey, Rohde, & Farmer, 1990), or probed knowledge of intellectual disability (Quicke, 1989). Although these passive approaches to studying perceptions are interesting, active study of perceptions – that is, how the perception affects attitudes toward intellectual disability – has been largely lacking.

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see how a perception affects attitude toward persons with intellectual disability. Finally, we will compare the relative effects on attitude of demographic and perception variables.

Method

Participants

Participants were parents (or guardians) of children attending 11 elementary schools in Kasugai (the city is a typical medium-size city, and has a population of about 290,000), Aichi Prefecture, Japan. The 11 schools were randomly selected from all elementary schools \( (n = 37) \) in Kasugai. A questionnaire was distributed to all families \( (n = 2758) \) whose children attend one of the 11 schools by teachers and collected in December, 2000. We did not conduct random sampling from the population of Kasugai. This is because the identification of participants associated with random sampling gives a bad feeling to participants in Japan. Instead, schools were selected randomly and we tried to get all of the targeted participants from selected schools. This procedure made it possible to collect responses without identification of participants.

Questionnaire

The questionnaire is in the Appendix in the previous study (see Tachibana & Watanabe, 2004a, for details). Briefly, the Likert type items were presented (item 1-16). Respondents were required to rate their attitudes toward individual items from "strongly agree" to "strongly disagree". Items were chiefly employed from the study by Zentokuren (1962) (see Tachibana & Watanabe 2002). The study by Zentokuren is one of the most influential studies conducted in Japan. Many later Japanese studies employed the same questions used in this study. A few items were also added to the present questionnaire for the purpose of an international comparison (Antonak et al., 1993; Antonak, Mulick, Kobe, & Fielder, 1995; Henry, Keys, Jopp, & Alcazar, 1996).

Then, they were asked to 1) estimate the prevalence of persons with intellectual disability in the general population, 2) estimate the number of persons with intellectual disability in their own future family, and 3) estimate the proportion of hereditary causes of intellectual disability (item 17-19).

In item 20, three questions were asked regarding respondents’ perceptions about persons with intellectual disability. In item 20A, respondents were required to describe the age of the perceived person with intellectual disability. In item 20B, respondents were asked what dimensions of disability they associated with a person with intellectual disability. Respondents were required to select from seven alternatives: a) fundamental daily habits, b) communication, c) using public facilities, d) understanding of characters and calculation, e) ability to work, f) challenging behavior, and g) others. These dimensions (a-e) were derived from the list of 10 adaptive skill areas defined by Luckasson et al. (1992), by condensing 10 areas to 5. In item 20C, respondents were required to describe the perceived degree of intellectual disability.

In item 21-28, demographic and other background information variables were examined, namely gender, age, occupation, job-related contact with persons with intellectual disability, and volunteer work with persons with a disability.

Scoring of Response

As responses to item 1-16 ranged on an 11-point scale from "strongly agree" to "strongly disagree", they were assigned scores from 5 to -5. "Uncertain" replies were assigned a value of 0. To facilitate interpretation, scores of negatively framed items were multiplied by -1. Thus, the higher the plus score the more favorable the attitude (the higher the minus value the less favorable the attitude).

As to item 17-18, the guessed number of persons with intellectual disability seen in the general population (GNG) (item 17) and seen in one’s future family (GNF) (item 18) were obtained. Then, ‘possibility of having persons with intellectual disability in future family’ (18A) calculated in two ways: \( \text{dif-A} = \text{GNG} - \text{GNF} \) and \( \text{dif-B} = \frac{\text{GNG}}{\text{GNF}} \). Respondents were grouped into three categories. Respondents who guessed the same number \( \text{dif-A} = 0 \) or \( \text{dif-B} = 1 \) was assigned 0 to ‘possibility of having persons with intellectual disability in future family’ (18A) \( \text{pos-fami} = 0 \). Those who guessed a larger number in
their family than in the general population was assigned -1 (pos-fami = -1). Respondents who guessed a smaller number in their family than in the general population were divided into two groups on the basis of the size of the difference. If diff-A > 3 and diff-B > 1.5, then they were assigned a score of 2 (pos-fami = 2). Other differences were assigned a score of 1 (pos-fami = 1). In the calculation of the mean of this variable (18A), respondents who scored -1 on pos-fami were pooled with those who scored 0, since -1 has the opposite sign of score from the others (0, 1, and 2). Respondents who had ‘zero-prevalence in own family’ (18B), were assigned a score of 0 (zero family = 0). The others were 1.

As to item 17-19, we cannot use the raw data for calculation of mean or SD because the distributions were far from normal. So they were transformed by the formula SQR(X + 0.5); where X is individual raw score and SQR is square root. The number and letter given in parenthesis attached to items such as ‘zero-prevalence in own family’ (18B) indicates its item number and corresponds to the number of the questionnaire which in the Appendix of Tachibana & Watanabe, 2004a.

For responses to item 20A, ages of the perceived person with intellectual disability were assigned as follows: preschool child, 1; elementary school pupil, 2; adolescent (junior high school or older), 3; adult (over 20 years old), 4.

On item 20C, responses were organized into four ordered degrees of severity namely ‘profound’, ‘severe’, ‘moderate’, and ‘mild’, respectively.

Condensed Scores
If all the information gathered from 16 items were put into a smaller number of condensed scores, our results should become more understandable intuitively. Item scores grouped into the same group by cluster analysis (centroid linkage method) were pooled into a score for the individual group. This way 16 item scores for individual respondents were condensed into 4 scores. See Tachibana and Watanabe (2004a) for the details of the results of the analysis. The condensed scores are:

‘pro-social norm’ = ‘close relationship’ (3) + ‘community living’ (1) + ‘getting together more frequently’ (13) + ‘tell real life’ (5);

‘social service for intellectual disability person’ = ‘care by the family’ (9) + ‘priority’ (11) + ‘special aid’ (7);

‘independent life’ = ‘independent marriage’ (15) + ‘having a credit card’ (16).

Results and Discussion
Main Demographic Information of Respondents
Overall return rate for the questionnaires was 87.6%. Some respondents who did not respond to a large part of the questions were dropped. Thus, number of respondents in the analysis was 2381. Main demographic data were as follows: Mean (SD) of respondents’ age was 38.2 (5.0) with the range being 23-65 years. Females (n = 2151), males (n = 230); Having a person with intellectual disability in one’s family (n = 73), having a person with intellectual disability among their relatives (n = 274), not having such a person in the family or relative (n = 2032); Having a close friend with intellectual disability, or having a close friend who has a person with intellectual disability as a family member (n = 398), having an acquaintance/neighbor who has a person with intellectual disability as a family member (n = 737), not having such a friend or an acquaintance/neighbor (n = 1244); Having a job-related contact with persons with intellectual disability (n = 138), no such experience (n = 2197); having some experience of volunteer work with persons so disabled (n = 207), no such experience (n = 2173).

See distribution results of each question (items 1-16) in the previous study, which focused on the question of the comparison with results from about 40 years ago (Tachibana & Watanabe, 2004b).

Perception of People with Intellectual Disability
Abbreviations for the terms used in figures are in Table 1.
It is interesting to know what perception of intellectual disability is dominant in the public. Figure 1 shows perceptions of intellectual disability obtained from items (18, 19, 20A, 20B, and 20C). The ages of persons with intellectual disability were most often perceived as adults. As to ‘perceived dimension of intellectual disability’ (20B), ‘communication of one’s ideas and feelings’ was most frequently mentioned with difficulty in ‘reading, writing, and calculation’ and ‘fundamental daily tasks’ following. Caruse and Hodapp (1988) asked college students “what behaviors or characteristics are typical of a retarded person?”. The major responses were “motor problem” (45%), “communication problems” (40%), “learns at a slower rate” (32%). These items correspond roughly to the present study’s ‘fundamental daily tasks’, ‘communication of one’s ideas and feelings’, and ‘reading, writing, and calculation’, despite differences in the targeted group (U.S. college students versus Japanese adults, mean age of 38.2). The similarity of finding across the two countries is interesting.

We asked respondents about the severity of the perceived intellectual disability. Among perceived degrees of severity of intellectual disability (20C) ‘moderate’ was the most prominent. In addition, ‘profound’ had a relatively large numbers of mentions (Figure 1, panel 4). In the real world, the proportion of people with intellectual disability whose category is mild is by far largest, e.g., 85% or more, and the proportion of cases who are severe or profound intellectual disability is very small (Shonkoff, 1992). Therefore the perceived severity of disability strongly contradicts the real world situation.

Why was the proportion of disability perceived as ‘moderate’ so large? One possible explanation is that many respondents do not regard ‘mild’ as a disability. However, the general public seems to consider the ‘mild’ level (defined by “They can use simple kanji characters and can do simple arithmetic”) as an

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**Table 1**

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<th>Abbreviations and Short Descriptions for Questionnaire Items Used in Figures</th>
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Numbers within () are item numbers.
intellectual disability because the definition suggests a person in a special class of a school. Furthermore, the idea of ‘mild’ level as an intellectual disability is widely accepted in the media and in most community settings. Thus, this possibility seems to be small. We might get a greater impression from a person with a severe level of disability when we have a contact with persons with intellectual disability. Thus, the ‘moderate’ level might come into the mind of a respondent instead of the ‘mild’ level when required to state the perceived degree of disability. This account, however, does not explain another interesting finding that the ‘profound’ level had a considerably large response because respondents very rarely meet persons with the ‘profound’ level of intellectual disability in real life. Media of-
ten reports people who work at a workshop. In our definition of the 'moderate' level, we used a word of "simple work" and "a workshop for people with intellectual disability". Many respondents might have in mind such media reports associated with a workshop, and they might have selected the 'moderate' level, independent of their actual contact experience in everyday lives. As to the large portion of 'profound' level, we have no reasonable account for it at the present time.

In short, these findings suggest that perceptions of intellectual disability are not always formed by the experience of direct meeting with people with intellectual disability. If a direct experience is not a great influence on making perceptions, such perception on intellectual disability may easily become a stereotyped one.

Figure 2. Relationship between perceptions of person with intellectual disability and demographic variables.

Family: 2 = having an immediate family member with intellectual disability; 1 = having a person with intellectual disability in the relatives; 0 = no family member or relatives with intellectual disability.
Friend: 2 = having a close friend who has a family member with intellectual disability; 1 = having an acquaintance/neighbor who has a family member with intellectual disability; 0 = no such person.
Age: 1 = younger than 34; 2 = 35-37; 3 = 38-40; 4 = older than 41.
Volunteer: 1 = having experience of volunteer work for persons with disability; 0 = no such experience.
Gender: 1 = female; 2 = male.
Job-contact: 1 = having experience of job-related contact with persons with intellectual disability; 0 = no such experience.
A larger mean score of 'pos-fami' indicates a larger difference between the two estimated values, that is, a belief that the prevalence of people with intellectual disability in one's own family is smaller than that of the general population.
Perception on Prevalence and Hereditary Cause of Intellectual Disability

Magnitude of the guessed prevalence of people with intellectual disability. Respondents estimated the prevalence of persons with intellectual disability in the general population as very low (the median is 5 per 1000 people) (Figure 1, panel 4). This markedly underestimates the official estimation of 30 per 1000 people (Fryers, 1993; Shonkoff, 1992). Does the small guessed prevalence reflect the true idea of the respondents or only a problem in definition? If respondents have interpreted intellectual disability as more severe than the ‘mild’ level, then this should induce them to give a very low estimate of its prevalence. The guessed rate of 5 per 1,000 persons corresponds to the actual prevalence of ‘severe’ and ‘profound’ intellectual disability, Fernell, 1998. However, as mentioned above, it is unnatural to think that the general public does not consider a person with ‘mild’ disability defined in the present questionnaire as intellectual disability. Further (Figure 3, panel 5), perceived severity of disability (20C) did not greatly associate with the guessed prevalence of intellectual disability. That is, ‘mild’ level respondents did not predict the smallest score of prevalence.

Almost half the respondents believed that the prevalence rate of persons with intellectual disability in their own future family is lower than that in the general population (18A) (Figure 1, panel 5). Furthermore, about 20 percent believed they will have no person with intellectual disability in their future family (18B) (Figure 1, panel 6). The finding of so many respondents having such an incorrect idea is surprising.

![Figure 3. Relationship between perceptions of person with intellectual disability. ID-preva: 1 = 0-24 percentile; 2 = 25-49 percentile; 3 = 50-74 percentile; 4 = 75-100 percentile. Smaller scores indicate a smaller guessed prevalence. pos-fami: -1 = guessed a larger number than the general population incidence; 0 = guessed the same number as the general population; 1 = guessed a small number than the general population; 2 = guessed a smaller number than the general population. (See text for the difference between 1 and 2.) degree: 1 = ‘mild’; 2 = ‘moderate’; 3 = ‘severe’; 4 = ‘profound’.](image-url)
In short, results of the guessed prevalence of people with intellectual disability in the general population and in their family clearly indicate that respondents have incorrect knowledge of the matter. This incorrect knowledge may be a possible reason that many people think the problem of intellectual disability is out of their involvement.

**Magnitude of the guessed value of hereditary cause.** Most respondents considered that the percentage of persons with intellectual disability due to hereditary causes is relatively small (Figure 1, panel 7). Median of the guessed values is 18%. Some studies showed the etiology of mental retardation on the basis of population survey (Hou, Wang, & Chuang, 1998). Assessment of the true value for proportion of hereditary causes is not easy (Thapar, Gottesman, Owen, O’Donovan, & McGuffin, 1994). We do not examine whether the guessed value is near the true value or not. Our focus is on the reliability of the magnitude and on the relationship of perceived proportion of hereditary cause and respondents’ attitude toward people with intellectual disability.

Most previous studies asked for responses in terms of agree/disagree to the idea that intellectual disability is due to hereditary cause. In Zentokuren (1962), 16.5% of respondents agreed that intellectual disability is induced mainly by hereditary cause; Latimer (1970) put the figure at 15%; McCormack and McConkey (1983) 31-47%; Caruso and Hodapp (1988), 23% in experiment 2, 1-9 selection; Antonak, Fiedler, and Mulick (1989), 5-13%; Eggert and Berry (1992), 10-32%. We cannot make a direct comparison with other studies, however, we might extract expected score as if we asked agree/disagree as in previous studies. In our results, only 0.27% of respondents thought the inherited proportion was 100%, and only 2.6% put it at over 90%. These scores seem to correspond to ones found by previous studies. It seems that our respondents were less likely than those in other studies to attribute intellectual disability to hereditary causes.

**Relationship Between Perception and Attitude**

The major relationships between perceptions and demographic variables are shown in Figure 2. As to the magnitude of ‘pos-fami’ (the magnitude of difference between the general population and one’s own family in the guessed prevalence), a larger score indicates a larger difference between the two guessed values, indicating a belief that prevalence of intellectual disability in one’s own family is smaller than that of the general population. Respondents who have a family member with intellectual disability gave higher scores on ‘guessed prevalence of people with intellectual disability’ (17), lower score for ‘guessed proportion of hereditary cause’ (19), and a smaller difference between prevalence in the general population and possibility of having persons with intellectual disability in future family (18A) (Figure 2, panel 1-3). On the other hand, ‘friend’ was not associated with these perceptions (panel 4-5). ‘Volunteer work’ had a small association with only ‘guessed proportion of hereditary cause’ (19) (panel 9-10). ‘Job-related contact’ was associated only with ‘possibility of having person with intellectual disability in one’s future family’ (panel 14-16). In other words, the variables of friend, volunteer work, and job-related contact did not show clear associations with ‘hereditary cause’ (19) or ‘possibility of having persons with intellectual disability in future family’ (18A) in comparison with family variable. Younger respondents (23-34 years old) gave a higher score for ‘guessed prevalence of people with intellectual disability’ (17), a greater score for ‘guessed proportion of hereditary cause’ (19), and a smaller ‘possibility of having persons with intellectual disability in future family’ (18A) (Figure 2, panel 6-8). Will the pattern of responses of younger respondents become more like the responses of older respondents as they age? We have no conclusive evidence on this though our findings are relevant to a consideration of future society in Japan. Females had higher scores of ‘guessed prevalence of people with intellectual disability’ (17) and smaller ‘possibility of having persons with intellectual disability in future family’ (18A) and greater proportion of intellectual disability attributable to hereditary cause (19) (Figure 2, panel 11-13). This is an interesting finding but we have no clear reason for it. ‘School types had been attending’ (24) and ‘occupation types’ (23) did not show any clear association with perceptions.

The major relationships among perceptions
are shown in Figure 3. Respondents who gave a higher score for ‘guessed prevalence of people with intellectual disability’ (17) also gave a higher score for ‘guessed proportion of hereditary cause’ (19) (Figure 3, panel 1). Respondents who gave a low score for ‘possibility of having persons with intellectual disability in future family’ (18a) gave a high score for ‘guessed proportion of hereditary cause’ (19) (panel 3) and for severe degree of disability (panel 4). Respondents who gave a low score for ‘possibility of having persons with intellectual disability in future family’ (18a) gave a very high score for ‘guessed prevalence of people with intellectual disability’ (17) (panel 2).

The major relationships between condensed scores and perceptions are shown in Figure 4. Respondents who perceived person with intellectual disability more severely disabled (20c) had less favorable attitudes on most condensed scores (Figure 4, panel 10-12). The findings of the link between severity of disability and attitudes towards disability in
the present study are not new (Gottlieb & Siperstein, 1976; Williams, 1986a). However, an additional finding of this study is that respondents generally perceived people with intellectual disability as having a more severe degree of disability than they had in fact; this is illustrated in Figure 1, panel 3. By considering the two findings together, we can conclude that this overestimation of the severity of a disability is a clear and significant disadvantage for individuals with intellectual disability. Respondents who had higher scores for ‘guessed proportion of hereditary cause’ (19), smaller ‘possibility of having persons with intellectual disability in future family’ (18A) and a belief for ‘zero-prevalence in own family’ (18B) showed clearly unfavorable attitudes on condensed scores; ‘anti-social norm’ question, ‘pro-social norm’ question and ‘social service for person with intellectual disability’ question (Figure 4, panel 1-9). Among these items, response to the ‘possibility of intellectual disability person in future family item’ (18A) may be the most important variable. Taking into consideration the relationship between ‘guessed proportion of hereditary causes’ (19) and ‘possibility of having persons with intellectual disability in family’ (18A) (Figure 3, panel 3), we can make an inference: if some respondents consider that intellectual disability is caused in large part by heredity and that such heredity does not run in the respondents’ family, then they think that intellectual disability is a matter in other families. This thinking will result in them having a feeling of indifference towards people with intellectual disability or adopting a less favorable attitude toward such persons. On the other hand, if respondents consider that the role of hereditary causes is small and that they have the same chance of having a family member with intellectual disability as those who now have a family member with intellectual disability, then they should have a more favorable attitude. In other words, we speculate that the idea of hereditary cause does not directly effect attitude, but effects attitude through the idea of indifference with oneself.

We may expect respondents who over-estimate level of prevalence of people with intellectual disability to show more positive attitudes towards people with intellectual disability because of their concern for such people. However, ‘guessed prevalence of people with intellectual disability’ (17) did not vary with attitudes as is shown, for example, in the data on ‘Anti-social norm’ responses given in Figure 4, panel 13. As can be seen in Figure 3, panel 1, respondents who scored higher for ‘guessed prevalence of people with intellectual disability’ (17) also scored higher for, ‘guessed proportion of hereditary cause’ (19). Since a higher score for ‘guessed proportion of hereditary cause’ (19) is clearly associated with negative attitudes, part of the positive effect due to greater guessed prevalence might go counter to the expected direction arising from the belief of hereditary cause, resulting in an unclear effect of this variable on attitudes.

Comparison of the Amounts Explained by Perceptions and by Demographic Variables

The relevance of perception and demographic variables to attitude score are presented in Figure 5. Multiple correlations for condensed scores using all perception variables (17-20) and demographic variables (21-28) are presented Figure 5, panel 1. Semi-partial correlation for condensed scores using the set of perception variables, when the set of demographic variables was partialized out, and the semi-partial correlation for condensed scores using the set of demographic variables, when the set of perception variables was partialized out, are presented in Figure 5, panel 2. As can be seen in Figure 5, panel 2, the unique information given by perception variables over and above demographic variables was clearly greater than that given by demographic variables over and above perception variables, indicating the importance of perception variables.

Attitudes toward persons with intellectual disability are related to some demographic variables as well as to perceptions. However, the two types of variables seem to have a different relationship with attitudes. The guessed proportion due to hereditary causes is a perception based mainly on respondent’s knowledge of intellectual disability, and thus can be easily changed by teaching. On the other hand, demographic variables such as ‘volunteer work’ may associate often with a disposi-
tionally favorable attitude, and thus may not be as amendable as variables on knowledge. This difference in character of the variables makes clear the importance of the study of perception variables, especially from a view of social action for improving unfavorable attitude in people.

Conclusion

To date researchers have concentrated on the relevance of demographic variables (such as effect of experience of contact, gender, or age) to attitude, in the hope of finding some key factor that could be used to change unfavorable attitudes towards people with intellectual disability. In the present study, we emphasized the importance of perceptions of intellectual disability for attitudes. Williams (1986b) showed that volunteer work is a function of one’s self-concept. This finding is an unexpected one from a researcher who emphasizes demographic variables. However, if we consider that one’s self-concept is a schema, which may be relevant to one’s action such as volunteer work, the finding is understandable. From findings in the present study, we concluded that it might be better not to aim to directly change an unfavorable attitude but instead to change the perception (with a resultant change the attitude). This is a new approach for improving attitudes of people. Some important perceptions are based on incorrect information, so changing relevant perceptions (and schemata) should be easier than trying to directly change the attitude. Among perceptions, the most important are the chance of having a person with intellectual disability in one’s own family and proportion of intellectual disability due to hereditary causes.

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