

Literature Review

Japanese American: Culture and Care Needs

1. Acculturation and prevalence of diabetes among Japanese-American men in Hawaii:

(ABSTRACT) The association between acculturation to a Western lifestyle and prevalence of diabetes was examined among 8,006 Japanese-American men in Hawaii with varying degrees of exposure to traditional Japanese social and cultural lifestyles in 1965-1968. A reduced prevalence of diabetes was observed among the men who had retained a more Japanese lifestyle. These men also reported higher levels of physical activity and consumed more carbohydrates and less fat and animal protein in their diet. An inverse association between diabetes and being born in Japan was observed independent of age, body mass index, physical activity, and percentages of calories from fat or carbohydrates (odds ratios = 0.67 and 0.66, 95% confidence intervals 0.49-0.93 and 0.48-0.91, respectively). The number of total years lived in Japan was inversely associated with prevalent diabetes after controlling for age, body mass index, and physical activity (odds ratio = 0.81, 95% confidence interval 0.68-0.96). Current Oriental diet (compared with Western diet) was inversely associated with prevalent diabetes after controlling for age, body mass index, and physical activity (odds ratio = 0.71, 95% confidence interval 0.50-0.98). These findings suggest that living a Japanese lifestyle is associated with a reduced prevalence of diabetes.

Epidemiol, A. J. Acculturation and prevalence of diabetes among Japanese-American men in Hawaii. 1996. <http://www.ncbi.nlm.nih.gov/pubmed/8823064>

2. Incidence and predictors of diabetes in Japanese-American men:

(ABSTRACT) Reports on the incidence and predictors of diabetes in minority populations are infrequent. The 6-year cumulative incidence of diabetes between 1965 and 1974 was estimated among 7210 Japanese-American men aged 45 to 68 years who were enrolled in the Honolulu Heart Program and were free of clinically recognized diabetes at baseline. The incidence of "possible" diabetes (based on history, medication, or hospital diagnosis) was 12.8% and the incidence of "probable" diabetes (based on diabetic medication) was 5.7%. Estimates of incidence in subjects with a non-fasting glucose concentration less than 225 mg/dL 1 hour after a 50-g load were 9.7 and 4.0%, respectively. Multivariate adjusted odds ratios (ORs) for probable diabetes in all subjects comparing the upper quintile with the lower four quintiles combined for continuous variables indicated statistically significant direct associations with body mass index (OR, 1.69; 95% confidence interval (CI), 1.31 to 2.18), 1-hour post-challenge glucose level (OR, 5.79; 95% CI, 4.58 to 7.33), triglyceride levels (OR, 1.47; 95% CI, 1.14 to 1.91), systolic blood pressure (OR, 1.36; 95% CI, 1.05 to 1.76), and parental history of diabetes (OR, 1.73; 95% CI, 1.29 to 2.33), and an inverse association with physical activity (OR, 0.49; 95% CI, 0.34 to 0.72), using logistic regression models including these variables as well as age, sub-scapular/triceps skin-fold ratio, and hematocrit simultaneously. Associations were similar but slightly weaker in men with glucose levels less than 225 mg/dL and in those who remained free of cardiovascular disease. When older men (55 to 68 years old) were compared with younger (45 to 54 years old) men, associations among the older group were stronger for body mass index, physical activity, and systolic blood pressure and they were weaker for glucose levels, triglyceride values, and parental diabetes. Results suggest that body mass index, physical inactivity, glucose level, and parental diabetes appear to be independent risk factors for diabetes, while triglyceride and systolic blood pressure levels may be markers for an adverse cardiovascular risk factor profile associated with diabetes and may reflect an insulin resistance syndrome.

Burchfiel, C.M. Curb, J. D., Rodriquez, B.L., Yano, K., Hwang, L.J., Fong, K.O. Marcus, E. B. Incidence and predictors of diabetes in Japanese-American men. 1995.

[http://www.ncbi.nlm.nih.gov/pubmed/7728283?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=2&log\\$=relatedarticles&logdbfrom=pubmed](http://www.ncbi.nlm.nih.gov/pubmed/7728283?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=2&log$=relatedarticles&logdbfrom=pubmed)

3. Incidence of non-insulin-dependent diabetes mellitus and its risk factors in Japanese-Americans living in Hawaii and Los Angeles:

(ABSTRACT) The incidence of non-insulin-dependent diabetes mellitus (NIDDM) and its risk factors were analyzed from data of a follow-up study conducted on Japanese-Americans living in Hawaii and Los Angeles areas known to have a high prevalence of NIDDM. There were 1144 Japanese-Americans aged 40 years or more (mean (+/- SD) age: 60.7 +/- 10.1) available for follow-up, and who were non-diabetic based on glucose tolerance test (GTT) results conducted at the time of the initial examination. During the study period (6.3 +/- 3.2 yr), 124 cases of NIDDM occurred with an incidence rate as high as 10.8% or 17.2 persons per 1000 person-years. The incidence of NIDDM was 1.25 times higher in males than in females, and the rate increased with age. The incidence in obese people (body mass index: BMI > or = 25) was approximately twice that in the non-obese, the rate increasing with the level of obesity. Using Cox's proportional hazards model, the risk factors for NIDDM were analyzed after adjusting for sex and age. Significant risk factors were the serum glucose (SG) level (fasting, 1-h, 2-h), the serum immunoreactive insulin (IRI) level (1-h, 2-h) during GTT, BMI, serum triglycerides, high density lipoprotein (HDL)-cholesterol, serum uric acid, diastolic blood pressure, systolic blood pressure, serum total protein, and delta IRI/delta SG (0-30 min) level. In particular the hyperinsulinaemia was a significant risk factor even after adjusting for sex, age, and obesity. The incidence of NIDDM in the sub-group whose delta IRI/delta SG (0-30 min) level was under 0.3 was higher than that of the over 0.8 sub-group by a factor of approximately 12. Likewise, after dividing the subjects into five sub-groups according to the fasting or 2 h IRI level, the incidence of NIDDM was higher in the highest quintile than in the lowest quintile sub-group by a factor of approximately 3 and 7, respectively. The results of the GTT of the subjects who developed NIDDM during the follow-up period were analyzed longitudinally and compared with the results obtained 8 years before occurrence of NIDDM. An increase in the 2-h serum IRI was observed initially, followed by an increase in the 2-h serum glucose level, preceding the appearance of NIDDM. In conclusion: 1. A high incidence of NIDDM is clearly observed in the population of Japanese-Americans, who are genetically indistinguishable from native Japanese; causes of this increase, from the survey results, are suspected to include westernization of lifestyle, particularly the reduction in the level of physical activity, conversion to a diet containing markedly more animal fat, simple carbohydrates, and less complex carbohydrates. 2. In the Japanese-Americans, diminished early insulin release to an oral glucose challenge and increased insulin resistance characterized by hyperinsulinaemia are suspected to be some of the important risk factors for NIDDM. Consequently, this study strongly suggested the possibility that the development of NIDDM in Japanese persons may be influenced by environmental factors.

Hara. H., Equsa, G., Yamakido, M. Incidence of non-insulin-dependent diabetes mellitus and its risk factors in Japanese-Americans living in Hawaii and Los Angeles. 1996.
[http://www.ncbi.nlm.nih.gov/pubmed/8894497?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=5&log\\$=relatedarticles&logdbfrom=pubmed](http://www.ncbi.nlm.nih.gov/pubmed/8894497?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=5&log$=relatedarticles&logdbfrom=pubmed)

4. A comparison between Japanese-Americans living in Hawaii and Los Angeles and native Japanese: the impact of lifestyle westernization on diabetes mellitus:

(ABSTRACT) We have been conducting the Hawaii-Los Angeles-Hiroshima Study since 1970, mainly to determine the effects of environmental changes on various diseases by comparing Japanese-Americans with native Japanese subjects. Japanese-Americans living in Hawaii and Los Angeles are originated mainly from Hiroshima, Japan and are genetically identical with native Japanese. Through this study, we made several clear observations about Japanese-Americans. First, Japanese-Americans were highly exposed to a westernized lifestyle; in other words, a relatively high fat and simple carbohydrate diet with low physical activity as compared to native Japanese. Second, the prevalence of type II diabetes among Japanese-Americans and death from ischemic heart disease among Japanese-American diabetic patients were higher. Third, the serum fasting insulin level as well as the insulin level after a glucose load, was higher among Japanese-Americans, even when the serum glucose levels were not statistically different as compared to native Japanese. Accordingly, Japanese-Americans were thought to have a high insulin resistance status. However, the initial insulin response after a glucose load was low, which was more similar to Japanese people than to Caucasians. Fourth, the total cholesterol and triglyceride levels were higher among Japanese-Americans. These results are supposed to be derived from the insulin resistant status by the westernization of lifestyle, as well as from the weakness of pancreatic beta cell function that is supposed to be genetically regulated among Japanese. In conclusion, it appears that for

genetically Japanese people, environmental factors are important for the development of metabolic diseases such as diabetes mellitus and cardiovascular disease.

Nalamoshi, S., Okubo, M., Yoneda, M., Jitsuiki, K., Yamane, K., Kohno, N. A comparison between Japanese-Americans living in Hawaii and Los Angeles and native Japanese: the impact of lifestyle westernization on diabetes mellitus. 2004. [http://www.ncbi.nlm.nih.gov/pubmed/15589065?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=3&log\\$=relatedarticles&logdbfrom=pubmed](http://www.ncbi.nlm.nih.gov/pubmed/15589065?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=3&log$=relatedarticles&logdbfrom=pubmed)

5. Westernization of lifestyle markedly increases carotid intima-media wall thickness (IMT) in Japanese people:

(ABSTRACT) To illustrate the impact of westernization of lifestyle on the development of pre-clinical atherosclerosis in Japanese people, we compared risk factors for atherosclerosis such as serum lipids, blood pressure, BMI, insulin resistance, and smoking habits between non-diabetic native Japanese and non-diabetic Japanese Americans. Two hundred and twenty two non-diabetic Japanese Americans living in Hawaii and 271 non-diabetic Japanese living in Hiroshima, Japan were studied. Carotid intima-media wall thickness (IMT) was measured in all subjects by one physician. For all measurements the same ultrasound instrumentation was used. Although no significant differences were seen in serum total cholesterol (TC), triglycerides, or LDL-cholesterol (LDL-C) levels between the two groups in the 1998 study, previous to 1998 these three parameters were significantly higher in Japanese Americans than native Japanese in our study which has spanned the past 20 years. IMT was significantly greater in Japanese Americans than native Japanese (1.20 \pm 0.03 mm vs. 0.98 \pm 0.03 mm, (mean \pm S.E.) respectively; $P < 0.0001$). Moreover Japanese Americans reach an IMT of 1.1 mm at age 50, whereas the native Japanese reach this value at age 70. These observations indicate more rapid atherosclerosis progression in Japanese Americans. Based on our IMT measurements, the status and the estimated progression of atherosclerosis in Japanese Americans is increased. Since IMT is a validated endpoint for assessment of atherosclerotic disease risk, it can be concluded that Japanese Americans are at increased risk for cardiovascular disease.

Watanabe, H., Yamane, K., Fujikawa, R., Okubo, M., Egusa, G., Kohno, N. Westernization of lifestyle markedly increases carotid intima-media wall thickness (IMT) in Japanese people. 2003. [http://www.ncbi.nlm.nih.gov/pubmed/12482552?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=3&log\\$=relatedarticles&logdbfrom=pubmed](http://www.ncbi.nlm.nih.gov/pubmed/12482552?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=3&log$=relatedarticles&logdbfrom=pubmed)

6. Ultrasonographically assessed carotid atherosclerosis in Japanese type II diabetic patients: Role of non-esterified fatty acids:

(ABSTRACT) The aim of the present study was to evaluate the association of carotid atherosclerosis (intimal-medial thickness [IMT] in plaque-free segments and carotid stenosis in plaque segments) with serum non-esterified fatty acids (NEFA) in diabetic and non-diabetic patients. Fifty-one non-obese non-hypertensive Japanese type II diabetic patients aged 38 to 83 years (60.0 \pm 1.5 years, mean \pm SEM) and 23 age-matched (60.4 \pm 2.2 years, $P = .439$; range, 36 to 74 years) and sex-matched non-diabetic subjects were examined. The duration of diabetes was 9.6 \pm 1.0 years. Body mass index (BMI), blood pressure (systolic pressure, diastolic pressure), glycosylated hemoglobin (HbA(1c)), and fasting concentrations of plasma glucose, serum lipids (triglycerides, total, and high-density lipoprotein [HDL] cholesterol, low-density lipoprotein [LDL] cholesterol) and serum NEFA were measured. Using high-resolution B-mode ultrasound scan, we measured IMT in plaque-free segments of bilateral common carotid arteries, and the mean of IMT in 2 vessels was used for the analysis. Furthermore, we calculated the degree of stenosis in plaque segments of bilateral common carotid arteries. The degree of carotid stenosis was expressed as a percentage ratio between the area of plaque and that of the lumen using the formula (Lumen Area - Residual Lumen) \times 100. Both the areas were automatically measured by the system on a frozen transverse scanning plane at the site of maximal narrowing. When two or more plaques were present in the vessel, only that causing the greatest degree of stenosis was considered for analysis. Univariate regression analyses showed that mean IMT in plaque-free segments was positively

correlated with age ($r = .498$, $P = .0004$) and NEFA ($r = .354$, $P = .0188$) in type II diabetic patients. The degree of stenosis was positively correlated to age ($r = .422$, $P = .0028$), duration of diabetes ($r = .313$, $P = .0268$) and NEFA ($r = .540$, $P = .0003$) in diabetic patients. Other variables, including BMI and lipid profile, were not associated both with mean IMT in plaque-free segments and the degree of stenosis in plaque segments in our diabetic patients. Multiple regression analyses showed that mean IMT in plaque-free segments was independently associated with age ($P = .0003$, $F = 15.2$), which explained 26.1% of the variability of IMT in our diabetic patients. The degree of stenosis was independently predicted by NEFA ($P = .0047$, $F = 8.9$), which explained 17.2% of the variability of the carotid stenosis in our diabetic patients. In contrast, mean IMT in plaque-free segments was positively correlated to age in non-diabetic subjects ($r = .450$, $P = .0347$). There was, however, no relationship between the degree of stenosis and the variables, including age and NEFA, in non-diabetic subjects. These results indicate that the factors contributing to IMT in plaque-free segments and the degree of carotid stenosis in plaque segments are different in non-obese non-hypertensive Japanese type II diabetic patients. IMT in plaque-free segments was independently associated with age both in non-diabetic and diabetic subjects, whereas the serum NEFA level independently predicted the degree of stenosis in plaque segments in our diabetic patients, while not in non-diabetic subjects. Thus, NEFA is considered to be one of the new risk factors responsible for the progression of carotid atherosclerosis in non-obese non-hypertensive Japanese type II diabetic patients.

Taniguchi, A., Nakai, Y., Fukushima, M, et. Al, Ultrasonographically assessed carotid atherosclerosis in Japanese type II diabetic patients: Role of nonesterified fatty acids. \ 2002. [http://www.ncbi.nlm.nih.gov/pubmed/11979382?ordinalpos=1&itool=EntrezSystem2.Pentrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=4&log\\$=relatedarticles&logdbfrom=pubmed](http://www.ncbi.nlm.nih.gov/pubmed/11979382?ordinalpos=1&itool=EntrezSystem2.Pentrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=4&log$=relatedarticles&logdbfrom=pubmed)

7. Relationship of regional adiposity to insulin resistance and serum triglyceride levels in non-obese Japanese type II diabetic patients:

(ABSTRACT) The aim of this study was to investigate the relationships between insulin resistance and regional abdominal fat area, body mass index (BMI), and serum lipid profile in non-obese Japanese type II diabetic patients. A total of 63 non-obese Japanese type II diabetic patients aged 45 to 83 years were examined. The duration of diabetes was 8.4 ± 0.8 years. BMI, glycosylated hemoglobin (HbA(1c)) levels, and fasting concentrations of plasma glucose, serum lipids (total cholesterol, high-density lipoprotein [HDL] cholesterol, and triglycerides), and serum insulin were measured. The low-density lipoprotein (LDL) cholesterol level was calculated using the Friedewald formula ($\text{LDL cholesterol} = \text{total cholesterol} - \text{HDL cholesterol} - 1/5 \text{ triglycerides}$). Insulin resistance was estimated by the homeostasis model assessment (HOMA-IR). Computed tomography (CT) was used to measure cross-sectional abdominal subcutaneous and visceral fat areas in all the patients. Adipose tissue areas were determined at the umbilical level. Subcutaneous and visceral abdominal fat areas were 136.5 ± 6.0 and 86.0 ± 4.1 cm^2 , respectively. Univariate regression analysis showed that insulin resistance was positively correlated with subcutaneous ($r = .544$, $P < .001$) and visceral ($r = .408$, $P = .001$) fat areas, BMI ($r = .324$, $P = .009$), HbA(1c) ($r = .254$, $P = .001$), serum triglycerides ($r = .419$, $P < .001$), and serum LDL cholesterol ($r = .290$, $P = .019$) levels and was negatively correlated with serum HDL cholesterol level ($r = .254$, $P = .041$). Multiple regression analyses showed that insulin resistance was independently predicted by the areas of subcutaneous ($F = 6.76$, $P < .001$) and visceral ($F = 4.61$, $P < .001$) abdominal fat and serum triglycerides ($F = 8.88$, $P < .001$) level, which explained 36.9% of the variability of insulin resistance. Moreover, the present study demonstrated that whereas BMI was positively correlated with visceral ($r = .510$, $P < .001$) and subcutaneous ($r = .553$, $P < .001$) fat areas, serum triglyceride level was positively associated with visceral ($r = .302$, $P = .015$), but not with subcutaneous ($r = .222$, $P = .074$) fat area. From these results, it can be suggested that (1) both subcutaneous and visceral abdominal fat areas are independently associated with insulin resistance and (2) visceral fat area, but not the subcutaneous one, is associated with serum triglyceride levels in our non-obese Japanese type II diabetic patients.

Relationship of regional adiposity to insulin resistance and serum triglyceride levels in Non-obese Japanese type II diabetic patients. 2002. <http://www.ncbi.nlm.nih.gov/pubmed/11979383?ordinalpos=1&itool=EntrezSyst>

[em2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=2&log\\$=relatedarticles&logdbfrom=pubmed](#)

8. Japanese body image: Structure and esteem scores in a cross-cultural perspective:

(ABSTRACT) Culture appears to affect body image in general and body esteem in particular, yet do cultural differences in these constructs concern with factorial structure or merely the magnitude of their manifestation? This study examined what body parts and functions the body esteem of young Japanese adults consists of, and assessed its relation with several other construals of the self. A secondary goal was to compare scores of body esteem in Japan with data previously obtained for people of similar age and background in diverse cultures, such as the USA, Hong Kong, and Israel. The primary contention of this study was that body image might vary notably across different cultures. Because of cultural differences in the self, and indirectly also due to physiognomic variation, members of various cultures may differ in the way they conceive their own body, have divergent body ideals, and ultimately experience different feelings toward their body. The subjects were 569 Japanese undergraduates who filled in the Body Esteem Scale (BES) as well as measures of self-esteem, body consciousness, and social anxiety. Findings show fairly similar structure of body esteem to that found in the USA, but lower ratings of body esteem among Japanese than among their American, Chinese, and Israeli counterparts. In addition, findings indicate a large gender difference on the total BES score: Men expressed higher body esteem than women. Among both genders, however, body esteem correlated positively with self-esteem and body consciousness, but negatively with social anxiety. It is suggested that the structure similarity between Japanese and American body esteem is the result of universal human mating patterns as well as similar personality structure. The reason for the lower Japanese body esteem may involve general tendency for self-effacement and social anxiety. Further causes for the lower scores, which may concern broader cultural and historical perspectives, are briefly discussed.

Japanese body image: Structure and esteem scores in a cross-cultural perspective. 2002.
International Journal of Psychology.

<http://www.informaworld.com/smpp/content~db=all~content=a741933178>

9. Cultural Implications in Treatment of Japanese American Patients:

(ABSTRACT) Therapists encounter patients from varying cultural backgrounds. The values of occupational therapy parallel that of the Anglo American culture, i.e., independence, self-initiation, and internal motivation. To be truly effective as therapists it is important to be cognizant of how values and cultural aspects influence interactions, treatment, and perceptions of ability and disability. The purpose of this paper is to explore some of the values in the Japanese American culture, particularly the second generation (generally 40-65 years of age). Values such as deference, dependence, hierarchy, duty and obligation, and external motivation are discussed along with treatment implications and recommendations for treatment.

Kanemoto, J. S. Cultural Implications in Treatment of Japanese American Patients.
1987.

<http://www.informaworld.com/smpp/content~db=all~content=a904375142?words=japanese.american.culture>

10. American-Japanese cultural differences in judgments of emotional expressions of different intensities

(ABSTRACT) Although research has generated a wealth of information on cultural influences on emotion judgments, the information we have to date is limited in several ways. This study extends this literature in two ways, first by obtaining judgments from people in two cultures of expressions portrayed at different intensity levels, and second by incorporating individual level measures of culture to examine their contribution to observed differences. When judging emotion categories in low intensity expressions, American and Japanese judges see the emotion intended at above-chance rates, albeit lower than when judging high intensity faces. Also, American and Japanese intensity ratings of external displays and internal experiences differ dramatically for low intensity expressions compared to high intensity faces. Finally, the two cultural dimensions measured in this study--individualism versus collectivism (IC) and

status differentiation (SD)--accounted for almost all of the variance in the observed differences. These findings are discussed in terms of their underlying possible mechanisms, and future research possibilities.

Matsumoto, D., Consolacion, T., Yamada, H., Suzuki, R., Franklin, B., Paul, S., Ray, R., Uchida, H. American-Japanese cultural differences in judgments of emotional expressions of different intensities. 2002.
<http://www.informaworld.com/smpp/content~db=all~content=a713751457?words=japanese.american.culture>

11. American-Japanese Cultural Differences in Judgments of Expression Intensity and Subjective Experience:

(ABSTRACT) A number of studies have reported cultural differences in intensity ratings of facial expressions of emotion. In the previous research, however, observers made only a single intensity rating; thus, it was not clear whether observers rated the external display, or made an inference about the subjective experience of the poser. In this study, we obtained these two intensity ratings separately from American and Japanese observers. Results indicated that Americans perceived greater intensity in display, but Japanese inferred greater intensity of subjective experience. When examined within-culture, Americans rated display more intensely than subjective experience, whereas there was no difference between the two ratings for the Japanese. We discuss these findings in relation to the concept of cultural decoding rules, and outline an agenda for future research that examines the exact nature of these rules, the relationship between decoding, display rules and self-construals, and the role of context in judging emotion.

Matsumoto, D. American-Japanese Cultural Differences in Judgments of Expression Intensity and Subjective Experience. 1999.
<http://www.informaworld.com/smpp/content~db=all~content=a713751194?words=japanese.american.culture>