A Cross-Cultural Study of the Denver Prescreening
Developmental Questionnaire

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Abstract

The purpose of this study is to examine the variation of the scores of the DPDQ by
different cultural factors, especially the urban and weather factors. Another purpose of
this study is to compare the scores of the DPDQ in a rural village and an urban city with
those in Tokyo and the Yaeyama Islands.
In summer, the scores of the DPDQ in a rural village were significantly lower than
those in an urban city. But in winter, the scores of the DPDQ in a rural village did not
differ significantly from those in an urban city. The reason was the difference of the
mothers' life between a rural village and an urban city.
In summer and winter, the scores of the DPDQ in a rural village, an urban city, Tokyo
and the Yaeyama islands differed significantly. The reasons were that the persons who
answered the DPDQ and the places where it was administered varied widely.
When we evaluate child development by using the DPDQ, we need to consider these
factors.

Key words: CULTURE, DENVER, DEVELOPMENT, RURAL, SCREENING,
URBAN, WEATHER

Introduction

There are various cross-cultural studies of the Denver Developmental Screening Test
(DDST). (Sandler et al. 1970, Barnes and Stark 1975, Solomons and Solomons 1975, Ueda
Burke et al. 1985) The results of these studies about the validity and reliability of the
DDST are mixed.
One questionnaire which was transformed from the DDST is called the Denver

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Prescreening Developmental Questionnaire (DPDQ). When I researched the DIALOG data-base using the key-word "Denver Prescreening Developmental Questionnaire" for the files ERIC '66-'89 Aug, BIOSIS PREVIEWS '69-'89 Sep, EMBASE '74-'89, PASCAL '86-'89 Jul, MEDLINE '66-'89 Nov, PSYCINFO '67-'89 Aug, MENTAL HEALTH ABSTRACTS '69-'89 Jun, FAMILY RESOURCES '70-'89 Sep, Health Planning and Administration '75-'89 Oct, I could find five journal articles about the DPDQ. (Frankenburg et al. 1976, Fleming 1981, Rosembaum et al. 1983, Scheiner et al. 1985, Frankenburg et al. 1987) Among these five journal articles there was only one cross-cultural study about the DPDQ. (Rosembaum et al. 1983) In this study the DPDQ was applied in a low-income population in Alabama, U.S.A. Not only inside of Japan but also outside of Japan there was no cross-cultural study about the DPDQ comparing a rural village with an urban city.

When Ueda standardized the DDST in Japan, she revised it by considering different cultural factors, urban and weather factors.

The purpose of this study is to examine the variation of the DPDQ scores by different cultural factors, especially urban and weather factors.

In Japan Ueda translated the DPDQ into the Japanese language and standardized it in Tokyo, the capital of Japan. (Ueda 1983) Besides standardization, she conducted a cross-cultural study about the DPDQ in the isolated Yaeyama Islands, in southern Japan.

Another purpose of this study is to compare the scores of the DPDQ in a rural village and an urban city with those already conducted in Tokyo and the Yaeyama Islands.

Sample

Samples were 340 children, all under six years old, from Sawauchi Village, which is an isolated village in Iwate Prefecture in Japan. The population of Sawauchi Village is about 4,700. Sawauchi Village is surrounded by mountains. In winter the snow is three meters deep. The chief industry in this village is farming.

Samples from an urban city were 285 children, under six years old, from a residential district of Morioka City, the capital of Iwate prefecture. The population of Morioka City is about 200,000, and it is the biggest city in Iwate Prefecture.

The locations of Sawauchi Village, Morioka City, Tokyo and the Yaeyama Islands are shown in Figure 1.

Procedure

With the cooperation of three kindergartens and the health administration section of the Sawauchi Village Office I researched 340 children by using the DPDQ.

With the cooperation of two kindergartens and a hospital for children in a residential district of Morioka City I researched 285 children by using the DPDQ.

I conducted the research twice, first in August, 1985 and second in February of the
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The samples of this study were independent samples. The scores of the DPDQ were the ordinal scale. Therefore, the "Mann-Whitney U test" (Siegel 1956) was used as a statistical test.

Results

The collective condition of the DPDQ is shown in Table 1. The collective rates were from 48% to 100%.

The result of the "Mann-Whitney U test" which tested the scores of the DPDQ
Fig. 2 The scores of the DPDQ between Sawauchi Village and Morioka City

Fig. 3 The scores of the DPDQ between Sawauchi Village and Morioka City during the summer, and Tokyo and the Yaeyama Islands
Fig. 4 The scores of the DPDQ between Sawauchi Village and Morioka City during the winter, and Tokyo and the Yaeyama Islands

between Sawauchi Village and Morioka City is shown in Figure 2.

The result of the "Mann-Whitney U test" which tested the scores of the DPDQ between Sawauchi Village and Morioka City during the summer, and Tokyo and the Yaeyama Islands is shown in Figure 3.

The result of the "Mann-Whitney U test" which tested the scores of the DPDQ between Sawauchi Village and Morioka City during the winter, and Tokyo and the Yaeyama Islands is shown in Figure 4.

The scores of the DPDQ in Tokyo and Yaeyama islands were shown by indicating "under 6, 7, 8, 9 and 10" by Ueda. (Ueda 1979, Ueda 1983) I gathered the numbers of scores "1, 2, 3, 4, 5 and 6" in Sawauchi Village and Morioka City into "under 6" in Figure 3 and 4.

Discussion

As shown in Figure 2, in summer the scores of the DPDQ in Sawauchi Village differed from those in Morioka City significantly at $p<.01$, and the scores in Sawauchi Village were lower than those in Morioka City.

But in winter the scores of the DPDQ in Sawauchi Village did not differ from those in Morioka City significantly.

The reason why the scores of the DPDQ in Sawauchi Village in summer differed from
those in winter significantly at $p < .01$, and the scores of the DPDQ in winter were higher than those in summer, and the scores of the DPDQ in Morioka City in summer did not differ from those in winter significantly, is that about ninety percent of those who answered the DPDQ in this study were mothers. In Sawauchi Village, a mother's life in summer is different from her life in winter. Mothers can not take as much care of their children in summer because they are too busy with farm work and they do not have very much contact with their children. On the DPDQ, they chose the answer indicating “NO-CHILD CANNOT DO NOW, HAS NOT DONE IN THE PAST or YOU ARE NOT SURE THAT YOUR CHILD CAN DO IT”.

But in winter the mothers in Sawauchi Village can not work outside because of the weather, and they work inside of their houses. They have more contact with their children and chose the answer on the DPDQ saying that “YES-CHILD CAN DO NOW or HAS DONE IN THE PAST”. The scores of the DPDQ in winter were higher than those in summer in Sawauchi Village.

In Morioka City the features of a mother's life in summer did not differ from those in winter. The scores of the DPDQ in Morioka City in summer did not differ from those in winter significantly.

As shown in Figure 3 the scores of the DPDQ in summer in Morioka City were significantly higher than those in the Yaeyama Islands, summer in Sawauchi village and in Tokyo.

As shown in Figure 4 the scores of the DPDQ in winter in Sawauchi Village and in winter in Morioka City were significantly higher than those in the Yaeyama Islands and in Tokyo.

I think that the reasons for the differences between the scores of the DPDQ from Sawauchi village, Morioka City, the Yaeyama Islands and Tokyo were that the persons who answered the DPDQ and the places where it was administered varied widely.

In Tokyo the persons who answered the DPDQ were mothers who came to health centers for medical examinations and for counseling in child care, or mothers whose children went to kindergartens. (Ueda 1983) They answered it exactly in controlled conditions. In the Yaeyama Islands, public health nurses answered the DPDQ. (Ueda 1979) In Sawauchi Village and Morioka City mothers answered the DPDQ in their own homes.

In conclusion, the scores of the DPDQ varied according to urban and weather factors. Also, the scores of the DPDQ varied according to the persons who answered it and the places where it was administered.

When we evaluate child development by using the DPDQ, we need to consider these factors.

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