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メタデータ	言語: English 出版者: 公開日: 2015-05-25 キーワード (Ja): キーワード (En): 作成者: KUMAR, Surender, KIM, Yongseob, OH, Kunseok, KUMAR, Surender, KIM, Yongseob, OH, Kunseok メールアドレス: 所属:
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# Long-term Training Effects of Psycho Rehabilitation Technique for the Children with Disabilities: A Cross-cultural Study

Surender KUMAR, Yong Seob KIM, Kun Seok OH

## **Abstract:**

Dousa-hou method has been used in various countries for the children with mental retardation, cerebral palsy, and autism. The primary focus of the rehabilitation method is to improve upon bodily movements and posture as well as to introduce social support to patients and their first-degree relatives. Results of Questionnaire for Developmental Changes showed, that the psychological rehabilitation method Dousa-hou could support and promote most the health maintenance, least the emotion expression, and usual on the initiative & appearance, volunteer body movements, speech and communication, behavior control, and social interaction factors if getting regular practice of Dousa-hou training as average participation of 3.6 times in one-week camps in Indian context.

## **Introduction:**

Dousa-hou is a psychological rehabilitation process for the children and adults with disabilities, to improve their education, health, and psychological care (Naruse, 1973, 1985, 1992). Through Dousa-hou, children with cerebral palsy improve control of their behavioral activities, bodily movements, and posture, reduce anxiety and depression caused by their disabilities (Ohba, 1992; Ogawa, 1987; Saito, 2002), and socially interact more with others (Naruse, 1985, 1992; Harizuka, 1992; Konno, 1993b; Kumar & Harizuka, 2001, Tokunaga, 1996, 2002; Tsukada, 2001). Mothers and first-degree relatives of the child with disability received more social support through Dousa-hou therapy than usual social interactional activities of Dousa-hou during a one-week camp. In one-on-one training process of Dousa-hou, a patient experiences objective judgment of body movements and develops communication skills for responding to a trainer in attempting a desired body movement task with self-awareness and acquires behavior modifications. Relaxation, movements of body parts, and *Tate* (holding straight body postures during

sitting, kneeling, and standing) training are the three main training processes of Dousa-hou (Naruse, 1997a, 1997b). In this, a patient with disabilities performs trainer guided body movement tasks in different postures of *agura zai* (sitting), *hizatachi* (kneeling), *ritsui* (standing) and *houkou* (gait) by himself/herself under supervision of a supervisor. This has been noticed that patient gets relatively better support to improve in social skills interaction with others during Dousa-hou training sessions (Kim & Kumar etc., 2004, 2006, Tokunaga, 2002). The Dousa-hou was found useful for the children with mental retardation to provide awareness of body images, control of bodily movements or motor functions, social awareness, maintenance of self and self-decision, and health care to support the intellectual and psycho physiological needs.

The effectiveness of long-term psychological rehabilitation technique for the children with disabilities at cross-cultural level was examined in this study to know the continuous improvements of developmental changes occurred in body control, speech and communication, emotion expression, volunteer body movements, initiative and appearance, social interaction, and health maintenance factors, measured by the Questionnaire for Developmental Changes (QDC).

## **METHOD**

### ***Participants***

Twenty children with autism, dawn syndrome, mental retardation, behavior disorder, cerebral palsy disabilities ( $N = 20$ ,  $M$  age = 14.4 yr.  $M$  education = 8.3 yr.) studying in integrated Balvantray Mehta and Manasa schools, their mothers, 20 special educators as trainers, 3 supervisors and some volunteers as sub-trainers participated in the psychological rehabilitation camp for one-week. Subjects were specified as to their disabilities only. Disabilities ranged from mild to severe; none were profoundly disabled.

### ***Materials***

English version of 24-item Questionnaire for Developmental Changes (*see Appendix- I*) to measure the developmental changes of children occurred by Dousa-hou training method was developed by the researchers and was administered among the trainers and mothers along with Social Interaction Questionnaire. The items selected in the questionnaire were from seven areas of development as: I. Behavior Control (*item 1, 2*), II. Speech & Communication (*item 3, 4*), III. Emotion Expression (*item 5, 6, 7, 8, 9*), IV. Volunteer Body Movements (*item 10, 11, 12, 13*), V. Initiation and Appearance (*item 14, 15, 16, 17, 18*), VI. Social Interaction, (*item 19, 20, 21*), and VII. Health Maintenance (*item 22, 23, 24*).

## ***Procedure***

Children with autism, dawn syndrome, mental retardation, behavior disorder, cerebral palsy disabilities, special educators as trainers from Balvantray Mehta and Manasa Schools, caregivers of Mother Teresa Institute for disabled orphans, parents (mostly mothers), supervisors, and sub-trainers participated in a 1-week psychological rehabilitation camp (*see Appendix-II, Dousa-hou camp schedule*) of Dousa-hou organized in New Delhi and Shimoga, India. Such camps have been organized in previous years too. Dousa-hou training activities were organized in small groups of five to six trainer-trainee pairs under a supervisor, three times a day and for one hour each time. Recreational activities were organized involving active interplay of trainers, trainees, mothers, siblings, supervisors, and sub-trainers. English and Hindi national languages were the medium of instruction during Dousa-hou training.

Main Dousa-hou tasks for children with disabilities were practiced depending upon the type and level of disability as follows (*see Figure 1 to 5*).

Relaxation tasks in twisting trunk activities and by active horizontal relaxation.

Sitting crossed legs (*Zai*) tasks for relaxation, bending forward, and return straight at straightening the curvy back portions.

Kneeling tasks for balancing and body images.

*Shisei* (posture making) for attainment of straight and stable sitting, kneeling, and walking with coinciding images of the patient himself and in others' perception.

Arm uplifting Dousa-hou exercises in lying down and sitting posture.

Therapist (trainer) kept in mind the patient's needs, with concrete planning to support the patient's needs. The Dousa-hou activities were selected accordingly. All the activities were performed with slow pace because by speedy movements it becomes hard for the patient to judge and cope up with the information of body movements, how his body parts are moving, and how he is striving to create a desired movement. Relaxation tasks performance in lying down positions through twisting trunk, active horizontal relaxation, and uplifting the arms upward, downward and in directions.

English version of 24-item Questionnaire for Developmental Changes (QDC) to measure the developmental improvements of children facilitated by Dousa-hou training method were administered on the last camp day of Dousa-hou training among the trainers and mothers with Social Interaction Questionnaire. To measure the long-term training effects on trainee and the training effects noticing skills of trainers, the data was collected from the trainers and mothers who have been participated in such camps more than 2 times. Such participants had been involved in previous Dousa-hou camps in the range of 2 to 8 times. The similar set-up data were collected in Korean and Japanese Dousa-hou training camps too. This time we could analyzed the Indian set-

up data of trainers only in the study.

## RESULTS AND DISCUSSION

Total scores of QDC on seven factors (*see Table 1*) of trainers were analyzed using one-way analysis of variance using SPSS for windows (Kinnear & Gray, 2000). It showed that QDC's total scores of seven factors, (*between-groups*) as group effect of trainers, differed significantly ( $F_{1,6} = 34.43, p < .001$ ). *Table 1* showed that the subjects could rate the health maintenance factor at the most with mean rating of 4.72 ( $M = 14.15, SD = 1.6$ ) and emotion expression factor at least with mean rating of 2.82 ( $M = 14.1, SD = 5.45$ ) by trainers in Dousa-hou training sessions. It revealed that the most of the trainers found their trainees to maintain normal health during training activities; and less on clear understanding of the exhibited emotion expressions of their trainees in the sessions as their respective SDs showed. To identify the long-term training effects, the trainers and trainees did participate 2 to 8 times in one-week camps at 3.6 times average participation.

The *Table 1* also showed that the participants did notice the improvements on seven factors above average (more than 2.5; ranging from 1 to 5 scores). The developmental changes in the trainees through the Dousa-hou activities were observed by trainers most in health maintenance (*mean rating 4.72*) followed by initiation and appearance (*mean rating 3.59*), volunteer body movements (*mean rating 3.56*), speech and communication (*mean rating 3.46*), motor action (*mean rating 3.4*), social interaction (*mean rating 3.27*), and least on emotion expression (*mean rating 2.82*).

**Table 1.** MEAN SCORES AND STANDARD DEVIATIONS OF QUESTIONNAIRE FOR DEVELOPMENTAL CHANGES ON SEVEN FACTORS ( $N = 20$ )

Factors	Behavior Control (I)	Speech and Communication (II)	Emotion Expression (III)	Volunteer Body Movements (IV)	Initiative and Appearance (V)	Social Interaction (VI)	Health maintenance (VII)	Total	$F$ (1, 6)
<i>Mean</i>	6.8	6.95	14.1	14.25	17.95	9.8	14.15	12	
<i>S D</i>	2.14	2.50	5.45	3.81	2.90	2.59	1.60	5.03	
<i>Mean-Rating</i>	3.4	3.46	2.82	3.56	3.59	3.27	4.72	3.55	
Total	136	139	282	285	359	196	283	1680	34.43 **

*Note:-* \*\* =  $p < .001$ ; Total no. of items in QDC were 24; and responded by a trainer from 2 to 8 times with 3.6 mean times. Total QDC scores ranged from 24 to 120.

The above data analyzed results clearly gave a direction to know the developmental changes of the children with disabilities that children got benefit by the psychological rehabilitation method Dousa-hou better if undergoing the training on regular basis. The trainers who participated in training camps regularly also get skilled to notice the small developmental changes and outcomes as a result of practiced training activities with selection and emphasis on a particular Dousa-hou activity to produce a desired change of development.

To consider the long-term training effects, the trainees who participated more than two times could improve very well on health maintenance factors of breath, hearth rate and body temperature etc. controlling the nervousness, could gain on how to initiate a talk with others or to act on his role in recreational activities or when playing with others; and taking care of his own appearance. It means that the trainee could take care of himself with awareness as a social manner not to be looked awkward or dull. The trainee was found to produce body movements better and correct than earlier in different situations. The trainee could communicate his feelings better to their trainer using words in the training context. It was also emerged that a trainee could control the own behavioral activities with awareness by this method. It can also be concluded that the trainee got more chance to get social interaction with other persons including his trainer and was found involved from *sometimes* to *usual* states. The study results are in the direction of Tokunaga, 1996, 2002 that Dousa-hou activities significantly promote the social interaction between caregivers and the children with profound and multiple disabilities. In the last, it reflected from the results that trainee was not significantly able to produce facial emotion expressions in training activities. There may be chances that the trainer could not catch the produced emotional expressions at right time due to paying much attention to support the body movement tasks.

Overall, it can be concluded by the QDC results, that the psychological rehabilitation method Dousa-hou could supports and promotes most the health maintenance, *least* the emotion expression and *usual* the initiative & appearance, volunteer body movements, speech and communication, behavior control, and social interaction aspects if getting a regular Dousa-hou training. In the earlier studies we had noticed that such developmental changes did not occur up to the (up to *occasionally*) level as we have noticed in this study.

For further study, it is our aim to compile the trainers' and mothers' data of three countries in next publication to generalize the long-term effectiveness of the psychological rehabilitation method Dousa-hou for the benefit of the children with disabilities in respective and other countries.

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**Appendix- I**  
**Questionnaire for Developmental Changes (QDC)**

(For Trainers/ Mothers)

Demographic data :

Trainer / Mother Name : \_\_\_\_\_ Age : \_\_\_\_\_

Trainee's Education : \_\_\_\_\_ Sex of Trainee : \_\_\_\_\_

Date : \_\_\_\_\_

Please mark 1 if your answer is **never**, 2 for **occasionally**, 3 for **sometimes**, 4 for **usually** and 5 for **almost always**

**Did you notice any change in the child on the following aspects :**

1. Child could concentrate on a given body movement task	1	2	3	4	5
2. Child was found controlling the temper during training activities	1	2	3	4	5
3. Child talked with the therapist in training	1	2	3	4	5
4. Child was actively and frequently responded to the therapist	1	2	3	4	5
5. Did you notice <i>joy</i> on the child's face	1	2	3	4	5
6. Did you notice <i>sadness</i> on the face of child	1	2	3	4	5
7. Did you notice <i>anger</i> on child's face	1	2	3	4	5
8. Did you notice <i>rejection</i> of the activities by the child	1	2	3	4	5
9. Did you notice <i>fear</i> on the child's face	1	2	3	4	5
10. Child was able to produce desired movement of hands	1	2	3	4	5
11. Child was able to produce desired movement of legs	1	2	3	4	5
12. Child was able to produce desired movement of fingers	1	2	3	4	5
13. Child was able to produce desired moments of neck	1	2	3	4	5
14. Child was having the feelings of happiness	1	2	3	4	5
15. Child was participating in play with other children and parents	1	2	3	4	5
16. Child took initiative to talk with others	1	2	3	4	5
17. Child was looking fresh in the camp	1	2	3	4	5
18. Child was looking dull in the camp	1	2	3	4	5
19. Child voluntarily participated in recreational activities	1	2	3	4	5
20. Child tried to act on his role in a play with others	1	2	3	4	5
21. Child was found to play with others using a ball or toy	1	2	3	4	5
22. Child's body temperature was normal	1	2	3	4	5
23. Child's heart rate was normal	1	2	3	4	5
24. Child's breathing was normal	1	2	3	4	5

Is it your first or second or ( ) times to participate in Dousa-hou camp? Mark the suitable one.

Thanks for your cooperation.

Note.- Items were rated on a 5-point scale using anchors of 1 = never and 5 = almost always. Items for Factor I = 1, 2: Behavior Control; Factor II = 3, 4: Speech and Communication; Factor III = 5, 6, 7, 8, 9: Emotion Expression; Factor IV = 10, 11, 12, 13: Volunteer body movements; Factor V = 14, 15, 16, 17, 18: Initiative and Appearance; Factor XI = 19, 20, 21: Social Interaction; and Factor VII = 22, 23, 24: Health Maintenance.



**Appendix-II**  
**Dousa-hou Camp Schedule**

Day and Time	Dousa-hou Practice day for Trainers	First day	Second day	Third day	Fourth day	Fifth day	Sixth day	Seventh day
7 : 30 to 8 : 00		Morning Assembly	Morning Assembly	Morning Assembly	Morning Assembly	Morning Assembly	Morning Assembly	Morning Assembly
8 : 00 to 9 : 00		Break Fast	Break Fast	Break Fast	Break Fast	Break Fast	Break Fast	Break Fast
9 : 00 to 10 : 00		Dousa-Hou Practice	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training
10 : 00 to 11 : 30	Registration	Opening Ceremony	Educational Recreation	Educational Recreation	Educational Recreation	Educational Recreation	Educational Recreation	Child-Mother training
11 : 30 to 12 : 30	Orientation	Lunch	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Lunch
12 : 30 to 13 : 30	Lunch	Intake	Lunch	Lunch	Lunch	Lunch	Lunch	Closing Ceremony
13 : 30 to 14 : 30	Lecture	Intake	Rest Time	Rest Time	Rest Time	Rest Time	Rest Time	
14 : 30 to 16 : 00	Dousa-hou Practice	Intake	Educational Recreation	Educational Recreation	Educational Recreation	Educational Recreation	Educational Recreation	
16 : 00 to 17 : 00	Demonstration	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	Dousa-Hou Training	
17 : 00 to 18 : 00	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	
18 : 00 to 20 : 00	Bath Time	Bath and Free time	Bath and Free time	Bath and Free time	Bath and Free time	Bath and Free time	Bath and Free time	
20 : 00 to 21 : 00	Discussion	Group Meeting	Group Meeting	Group Meeting	Group Meeting	Group Meeting	Group Meeting	
21 : 00 to 22 : 00	Discussion	All Group Meeting	All Group Meeting	All Group Meeting	All Group Meeting	All Group Meeting	All Group Meeting	
22 : 00 ~	Sleep Time	Sleep Time	Sleep Time	Sleep Time	Sleep Time	Sleep Time	Sleep Time	

Note 1: Sleep time for trainees is 20:00



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

(スレンダー クマール：幼児教育科 教授)  
(キム・ヨンソプ：朝鮮大学)  
(オー・クンソク：光州保健大学)