

Effect of Multi-sensory Approach on Behavioral Problems of a Mentally Handicapped Adult – A Case Study

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Abstract

This paper is an investigation on the effect of multi-sensory approach on behavioral problems of a mentally handicapped adult. An empirical case study was applied to compare the frequency of undesirable behavior in a care and attention home setting and multi-sensory room. The results suggest that the decrease of undesirable behaviors (screaming and head hitting) in multi-sensory room was statistically significant. Our subject preferred interacting with the multi-sensory equipments to engaging in stereotypy. More research on the generalization effect of multi-sensory approach is recommended in the future.

Keywords: multi-sensory, behavioral problems, mental handicapped

Introduction

Hulsegge and Verheul (1987) claimed that there were human needs to seek sensory stimulation, to make sense of the world, to relax and to enjoy themselves. However, if people failed to fulfill these needs then attention would turn inwards. Finally it would result in anxiety and develop into maladaptive behavior. Durand and Carr (1985) proposed that self-injurious behavior might be driven by the need for sensory consequences. People with developmental disabilities were more likely to display disruptive behaviors than their typically peers. An estimate 40% of people with mental retardation displayed some degree of disruptive behavior (McDiarmid & Bagner, 2005). Snoezelen was a pleasurable, friendly

and highly humane approach that was easily accepted by staff and clients. Such approach was widely used by occupational therapists in multi-sensory room for people with learning disabilities and emotional disturbance (Thompson & Martin, 1994). According to Kwok, To and Sung (2003), people with developmental disabilities lived in relatively sensory deprived world. While multi-sensory room consisted of structured environment of multi-sensory input, it would create feeling of safety, novelty and such stimulation was under participants' control. Therefore, there has been significant increase in its application on clients with mental handicap. This study investigated the effect of multi-sensory room on behavioral problems of a mentally handicapped adult.

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Method

Participant

An empirical case study with A-B design was used in this investigation. In this study, assessment was made before and after the intervention. Ah Kuen, who was a 43 year old woman residing in a care and attention home for the severely disabled, was invited to join the program. She was diagnosed with severe mental retardation and epilepsy. She had normal basic senses, is an independent walker with right hand dominant, no speech but vocalization noted, and responded to her name, understood one unit command and intent of voice tone (anger and praise). She frequently displayed behavior problems and temper tantrum like screaming and head hitting. She needed to take medicine so as to control her mood and behaviors. According to staff observation, noisy and crowded environment would aggravate her temper tantrum.

Behaviors Defined

Screaming was defined as an episode of loud piercing cry or noise. It was a communication method of Ah Kuen to express her anger and discomfort. She displayed screaming frequently and disrupted staff and other clients severely. Head hitting was defined as an episode of hitting her head with her right hand. She performed self injurious behavior when she felt angry, uncomfortable or bored. Although the intensity of head hitting was mild with no injury record, she displayed such behavior quite frequently at the home. She was still at risk of self harm in future.

Recording

Event recording and frequency count were recorded to collect data (frequency of screaming, hitting head) for analysis. One program assistant and one therapist served as the primary observers and data collectors in the

present study. Data collectors were provided with the definitions of undesirable behaviors and the counting method. At the same time, they served as the reliability observers. Before the study, reliability observation test was conducted and the results were consistent.

Design and Procedure

As mentioned, a single-case subject A-B design was applied in this study. Condition A acted as a baseline phase to record undesirable behaviors before intervention and lasted for 5 days. Ah Kuen received 1 hour's multi-sensory session from Monday to Friday morning in condition B (Intervention). There was a total of 15 days' observation in condition B.

Baseline (condition A)

Observations were conducted in the living room during scheduled activity times under usual conditions. Ah Kuen was allowed to engage in whatever activity she chose during observation time.

Two data collectors alternated roles as the primary observer. Observation lasted for 1 hour from 10:00 am to 11:00 am from Monday to Friday. The observer recorded the frequency of screaming and head hitting.

Intervention (condition B)

Ah Kuen attended multi-sensory session with other 3 clients daily from 10:00 am to 11:00 am. The staff introduced brushing activity and joint compression to her in the first 10 minutes after entering multi-sensory room. After such compulsory activities, the participant was allowed to move around the room freely and interact with sensory equipment at her own pace. Screaming and head hitting behaviors were recorded during the whole session as in the living room.

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Results

A 2 standard deviation band approach was applied to analyze the data in the present study.

Figure 1 showed the frequency of screaming from day 1 to day 20. According to the graph, the frequency of screaming increased just after baseline phase, and then

displayed a downward trend until the end of the intervention phase. The mean and standard deviation of baseline period were 15.8 and 0.84. The 2 standard deviation to / from baseline mean was 17.48 to 14.12. Thus, the decrease of screaming in intervention phase was statistically significant compared to baseline phase as the mean of intervention phase was 12.13.

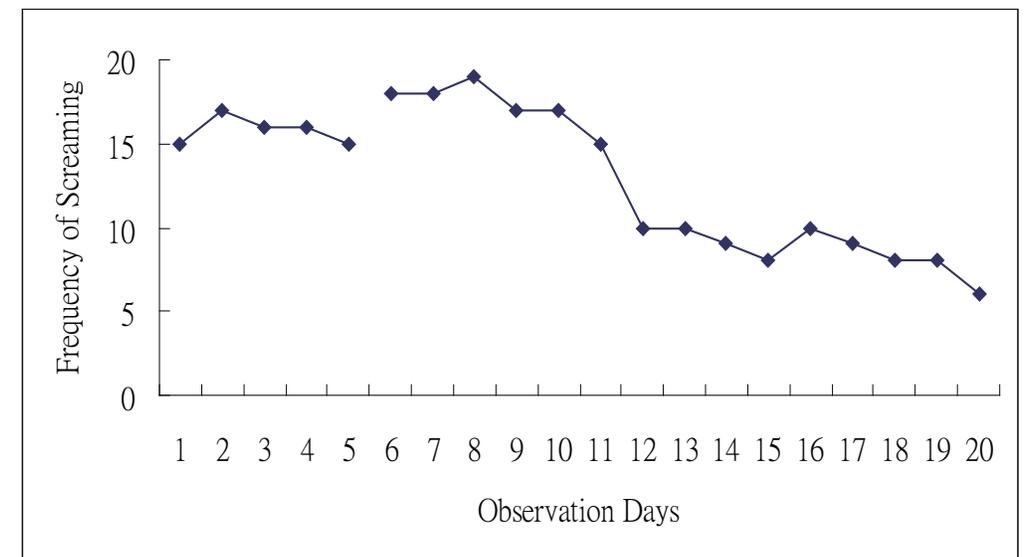


Figure 1: Frequency of Screaming

Regarding head hitting (figure 2), the tendency gradually decreased after baseline phase. The mean and standard deviation of baseline period were 9.6 and 0.55. The 2 standard deviation to / from baseline mean was 10.70 to 8.5. Thus, the decrease of head hitting in intervention phase was statistically significant compared to baseline phase as the mean of intervention phase was 7.87.

Participant's Performance

Ah Kuen was irritated by the multi-sensory environment and brushing activity

that were novel to her. She screamed quite frequently during the initial few sessions. After settling down to the environment, she was relaxed throughout the sessions and preferred walking around the room. Moreover, Ah Kuen preferred to play with optic fiber and concentrated on the flashing. Ah Kuen still displayed screaming and head hitting behaviors when other clients came close to her, especially when she was playing with optic fiber. Generally speaking, Ah Kuen was relatively relaxed and enjoyed multi-sensory sessions. However, she rarely engaged in social interaction with staff or peers.

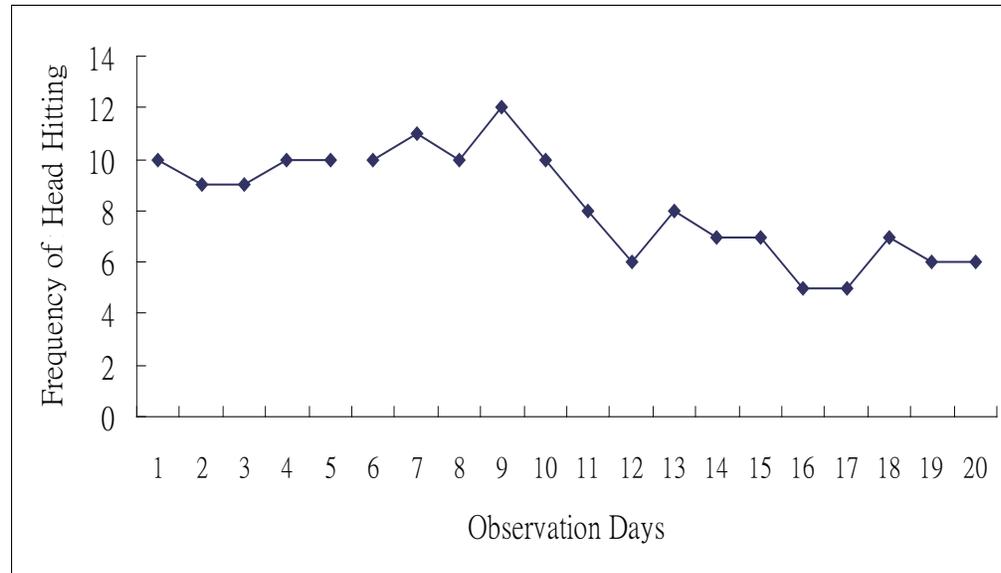


Figure 2 : Frequency of Head Hitting

Discussion

Ah Kuen's screaming and head hitting behaviors decreased in the multi-sensory room. It was because Ah Kuen obtained more sensory reinforcement from interacting with the equipment than from engaging in stereotypy (Cuvo, May & Post, 2001). However, in daily environment, Ah Kuen may have engaged in higher rates of stereotypic behavior to obtain automatic, internal sensory reinforcement because the reinforcement is less readily available in that setting. Furthermore, the environment and equipment in multi-sensory room are novel and interesting to participants. It is not surprising that clients will engage to the multi-sensory room rather than stereotypy.

In the multi-sensory room, the stimuli always included a harmonious combination of all the senses. Participants receive different types of stimuli at the same time. A study indicated that significant gains were noted due to pairing auditory and vestibular stimuli with severe retarded adults (James, Weaver,

Clemens & Plaster, 1985). Rincover, Cook, People and Packard (1979) also claimed that appropriate toy play with proprioceptive, visual and auditory feedback decreased self-stimulatory behavior when offered to children with mental retardation. The dual neural pathway of cranial nerve VIII (i.e. the Vestibulocochlear) explained that there is a close neurophysiological relationship between auditory and the vestibular system (Ayres, 1972). So Ah Kuen listening to soft music in multi-sensory room would lead to improvement in concentration, become more relaxed, reduce muscle tone and increase arousal level.

The stimuli are constant, predictable and long lasting in multi-sensory session. These seem to give the participant, especially for mentally handicapped clients, the necessary time to absorb the surrounding (Shapiro, Parush, Green & Roth, 1997). The nature of the stimulation in the multi-sensory room is soft with white color. The equipment and furniture are padded and participants will feel a sense of security. Moreover, many stimuli

are very basic and not demanding. As a result, multi-sensory room suits well for participants with learning disabilities and multiple physical handicap. Furthermore, lighting in the multi-sensory room is half dimmed and is relaxing compared with neon lighting. This point was supported by the research carried out by Frank, Maurer and Shepherd (1991) on the light and sound environment of neonatal intensive care unit. Therefore, participants in the multi-sensory room will receive optimal and correct amplitude of sensory stimuli, and they do not need to explore sensory stimulation in the way of maladaptive behavior.

Conclusion

Primary themes of multi-sensory room are to provide relaxation and fun for participants in order to deal with their stereotypic behaviors. Many researches also claim that multi-sensory room is capable of handling with stereotypy within the session. Even Martin, Gaffan and Williams. (1988) agreed that multi-sensory room had an impact on some individuals during the session. But all the impact would drop sharply when reverted back to the control environment or some time after treatment. Tsui (2003) and Cuvo, May and Post (2001) also shared the similar finding that the effect of multi-sensory room could not be generalized and could not sustain. Therefore, in future studies, we should focus on the frequency of undesirable behaviors of our clients so as to investigate the generalization effect.

摘要

個案研究—多感官室在改善智障人士行為問題的應用

本文旨在探討應用多感官室(Multi-sensory room)來改善嚴重弱智人士行為問題。通過一位在嚴重弱智人士護理院舍院友的個案研究，比較這位院友在護理院舍環境和多感官室內的尖叫及打頭等行為問題的出現次數。從數據顯示當該名院友在多感官室內，她的行為問題出現次數明顯減少。我

們建議可在未來研究中著眼於多感官室的治療效果能否轉化致日常生活環境上。

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