A Case Study on the Spatial Composition and the Use of Multi Sensory Stimulating Environments for Non-Handicapped People

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Abstract

Recently Multi Sensory Stimulating Environments have been spreading globally and used for challenged and elderly people. Also they have been used by people who are under stress, tired office workers and so on in some institutes. The purpose of this study was to explore their spatial compositions, its use and effects. Questionnaire surveys and interviews were conducted on institutes which have Multi Sensory Stimulating Environments for non-handicapped people. As a result some suggestions which are helpful to design the environments were obtained. 1) It is revealed that the rooms tended to be smaller than 25m^2 which is suggested by ISNS, because only a few users use the rooms simultaneously and staff was satisfied with its size. 2) User's purposes to use the rooms were mainly counseling・aromatherapies, calming themselves down. 3) In the aromatherapy saloon it was highly evaluated among its users.

Key Words : Snoezelen, Relaxation, Calming down, Aromatherapy, able-bodied.

1. Introduction

Multi Sensory Stimulating Environment (known as snoezelen) (hereinafter referred to as MSSE) was designed by Ad Verheul, a Dutch occupational therapist, and others in 1970s[1]. In those rooms, there is much equipment such as mirror balls and projectors which are to stimulate user's visual senses, audios to get auditory stimulation, aroma diffusers to obtain olfactory stimulation and toys for tactile and vestibular sensation(Fig.1). Depending on user's interests, characters and purposes these environments are changed to make users relaxed and get interested[2), 3)].

The above activities have been spreading globally and introduced into not only nursing homes or institutes for the challenged but also into hospitals, schools and so on. Up to now they have been used for the handicapped and elderly mainly, although its effects are widely noticed. Other studies been have concluded that they have been used to reduce stress for expectant and nursing mothers[4)], to treat with PTSD[5)], as psychotherapies to people who are living in temporary housings[6)] and for aromatherapies[7)]. Moreover Banba et al. were working on advanced experiments that were about installing equipment for MSSE in a hallway to make workers refreshed[8), 9)].

Based on these backgrounds it is reasonable to suppose that targets and use of MSSE will extend from now on. In the field of architecture, studies on spatial compositions such as room areas and installed equipment[10)] and the room's use and effects[11,12)] have been carried out. In addition, MSSEs have been getting some attention as one of solutions to relief stress. Therefore some studies have been designed to focus on psychological and physiological effects on not challenged or elderly people but for non-handicapped subjects[13)]. However, little has been known about cases which have been done for the non-handicapped so far all over the world. The spatial compositions, the use and effects of those cases have not been clarified yet.

In light of the above the purpose of this study is to obtain fundamental suggestions to design MSSE for non-handicapped people. As its individual theme, therefore, the present study provides MSSE's spatial compositions, the use, effects and evaluations from its users.

Fig.1 MSSE in Multicap(Australia)

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2. Outline of study

In this study, questionnaire surveys to staff and case studies have been performed. In order to select subjects, hearing surveys to International Snoezelen Association (hereinafter referred to as ISNA), the Japanese branch of ISNA: All Japan Snoezelen Society, Japan Snoezelen Association and so on and literature reviews have been conducted. As a result, although it was not so many, it is revealed that possibly there were 38 MSSEs for non-handicapped people locally and internationally.

The questionnaire surveys were done to 12 institutes which cooperated on it from July to December 2012(Table1). However 4 cases which were found not to have the room for the able bodied were excluded from the analyzing date. This means 8 cases were verified. The questionnaires were sent to members of staff who were in charge of the MSSE by email or post. The questionnaires consisted of MSSE's spatial compositions, the use, effects that staff found and so on. In case there are some MSSEs in one institute, it was instructed to answer about the one which is used most frequently by non-handicapped people. In addition, detailed case studies were carried out to typical and characteristic two cases (case Ⅰ, Ⅱ in Table. 1) in July 2011 and August 2012. The case studies were comprised of interviews, measurements and analysis of space designs. Furthermore, the questionnaire survey on the evaluation of the MSSE to users of case Ⅱ was made.

3. Result of questionnaire survey

3.1 Spatial composition of MSSE

1) Spatial composition

The spatial composition of MSSEs is presented in Table1. In 2 cases, the rooms were installed in 1990s, and others were in 2000 and later. Especially, aromatherapy saloons (case Ⅰ, Ⅱ) were in 2009 and later which means they are relatively new. Regarding types of rooms, 7 cases were exclusive use type and multi use type which share the room with other therapies, was only 1. As to floor areas 4 cases were found to be 0~25 m^2 and 3 cases were 26~50 m^2. It is clarified that some of cases were under 25 m^2, although ISNA[1)] recommends over 25 m^2. Nevertheless, it is found that staff in the aromatherapy saloons was satisfied with its size.

White based colour design that highlights projected lights and patterns was applied to the wall and the ceiling the most (5cases). Wood floorings were installed in 3 cases and both of tiles and carpets were in 2 cases. In 4 cases users took off their shoes. On the other hand 3 cases allowed them to take their shoes on.

2) Installed MSS equipment

Fig.2 shows installed MSS equipment. As visually stimulating equipment, there were projectors and fiber optics in 6 cases, mirror balls in 4 cases and bubble tubes in 3 cases. As for auditory stimulating equipment, audios were installed in 7 cases and 2 had musical instruments. For olfactory stimulating equipment, aroma diffusers were set up in 5 cases. Although each institute has different types of equipment, visually, auditory and olfactory stimulating equipment were installed mostly. Moreover, 6 cases had cushions and 4 cases had beanbag chairs.

3.2 Use of MSSE

The use of MSSEs is presented in Fig.3, Fig.4 and Fig.5. 2 cases were used more than 5 times and 3~4times a week. 1~2times in 1 case and 3 cases used the room less than once a week. The main users were people under stress or have worries (5cases). Subsequently, 4 cases were for non-handicapped children. The purpose of the use was calming themselves down in 5 cases and counseling or aromatherapy in 4 cases

3.3 Effects of MSSE from the view point of staff

The effects of MSSE to the users are shown in Table.2. It is found that MSSEs provided relaxation, alleviating labour and senses of relief. These effects mostly met the user's purposes.

3.4 Closure

As the result of the questionnaire, it is found that there were some differences from MSSEs for challenged or elderly people and for non-handicapped ones as follows.

Only a few institutes had MSSEs for the non-handicapped in the world. However some aromatherapy saloons, hospitals, sports centers and so on have set up the room. In general it is used for a part of rehabilitation programes in nursing homes or institutes for the challenged. In contrast, institutes for non-handicapped people mainly made use of the room for counseling・aromatherapies or calming down.

Spatial compositions were principally designed based on the ISNA standard (originally made for challenged and elderly people), although in 4 cases, floor areas were less than 25 m^2. In spite of the scale, it is found that staff in aromatherapy saloons was satisfied with it. It is considered few users, compare to nursing homes or institutes for the challenged, use the room at the same time.

The next chapter describes detailed MSSEs and its use in a hospital and an aromatherapy saloon.

Table.1 Outline of MSSEs

Types of institutes	Names of Institutes	Location	Installed Year	Unit type	Floor area	Interior design			
						Colour tone of walls	Colour tone of ceilings	Type of flooring	Shoes on or off
Aroma therapy saloon	Ⅰ.Fountain	Japan	2010	Exclusive -use	Under 25	White base	White base	Wood flooring	Off
	Ⅱ.Healing and Learning Saloon Prism	Japan	2009	Multi-use	Under 25	White base	White base	Wood flooring	Off
Hospital	Ⅲ.Osborne Park Hospital	Australia	2001	Exclusive -use	Under 25	Pale green base	White base	Wood flooring	On
	Ⅳ.Bridgeport Hospital	USA	2009	Exclusive -use	Under 25	Blue base	Blue base	Carpet	On
Sports centre	Ⅴ.Southern Centre	NZ	2012	Exclusive -use	—	Multi-coloure base	Blue base	Carpet	—
Residential education	Ⅵ.Casa Pacifica	USA	2009	Exclusive -use	Over 25	Blue base	Blue base	Tile	On
Others	Ⅶ.Worcester Snoezelen	UK	1993	Exclusive -use	Over 25	White base	White base	Tile	Off
	Ⅷ.Beit Issie Shapiro	Israel	1993	Exclusive -use	Over 25	White base	White base	Mattress	Off

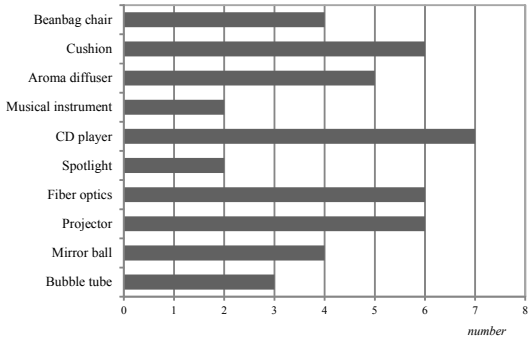

Figure.2 Installed equipment in the MSSEs

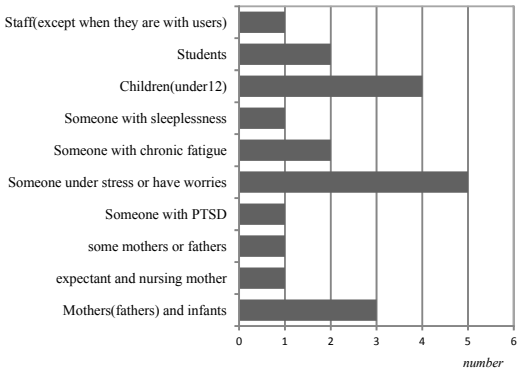

Figure.4 Types of the user

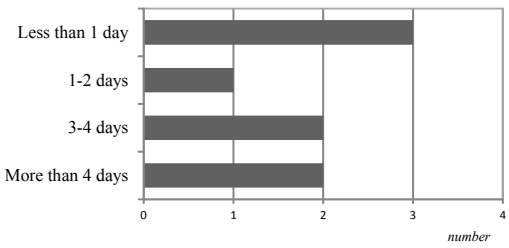

Figure.3 Frequency of the use

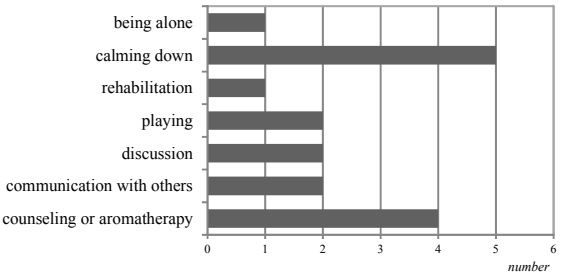

Figure.5 Purposes of the use

Table.2 Effects of MSSEs that staff ascertain

- It is helpful for relaxation. (Fountain)
- The mysterious and quiet atmosphere soothes user's emotion, makes breathing deep and provides senses of relief. (Healing and Learning Saloon Prism)
- Some of the users concentrate on the change of the room and it distracts the pain of labour. (Osborne Park Hospital)
- The room helps to relief worries, smooth irritated emotion and relaxation (Worcester Snoezelen)

4. Result of case studies

4.1 A case study on Osborne Park Hospital

4.1.1 Purpose of installation and the spatial composition

1) Purpose of installation

In general, pre-and postpartum women tend to be emotionally unstable because of childbirth, breastfeeding, physical fatigue and so forth. So far therapies such as acupunctures and massages are being done to deal with these problems[12]. In Osborne Park Hospital, focusing on effects of MSSE(for example, smoothing emotion and relaxation) the room has been installed for the following purposes:

① To alleviate pain from labour and concerns for expectant and nursing mothers (especially who are in labour or breastfeeding).

② To provide a space for relaxation and to be alone to them.

2) Outline of institute

Osborne Park Hospital is a public hospital established in 1962 in the city of Perth, Western Australia. 11 wings constitute the hospital and its site area is one hundred and twenty thousand m^2. This hospital is the second largest public provider of obstetric services in Western Australia and the maternity setting has on average 1500 births per year. The MSSE in Osborne Park Hospital was introduced in 201 for the first time for obstetrics and gynecology in Australia.

3) Outline of MSSE

Osborne Park Hospital had a MSSE for expectant and nursing mothers (Fig.6, 7, 8). Its floor area was 16.4m^2 and the users did not take off their shoes when they got in the room. In this room, wood flooring partly a yellow based carpet were installed. On the ceiling, it was painted white and walls were painted soft earthy colours of green which was selected for their link with birth and nature. Installed equipment was as follows①~③ (Fig. 6).

① As visually stimulating equipment, there were a mirror ball (Fig.8 upper right), a projector, a spotlight (with a colour wheel) (Fig.9), a fiber optics (Fig.10).

② As for auditory stimulating equipment, a CD player and 4 kinds of CDs such as healing music and orchestra, in order to choose depending on the users liking were set up. Moreover, the hospital allowed them to bring their own CDs.

③ For olfactory stimulating equipment, an aroma diffuser and a lavender aroma which smooth its user's emotion[1] were arranged. However, they were not always in the room because they may be stolen. Therefore, the users needed to ask at the reception to use it.

Additionally, a fish tank with colourful tropical fish was set up. According to a member of staff, because a number of women had fish tanks at home, it enhanced their relaxation.

4) Devices for designing MSSE

In this room, there were some devices for soundproofing (for instance, the only one door, no windows and 150mm thick concrete walls) in order to shut out the sound from outside of the room. Consequently, the users can not hear trolleys or nurses yelling. A switch panel was also installed with the intention of making changing the environment easy for all of the users.

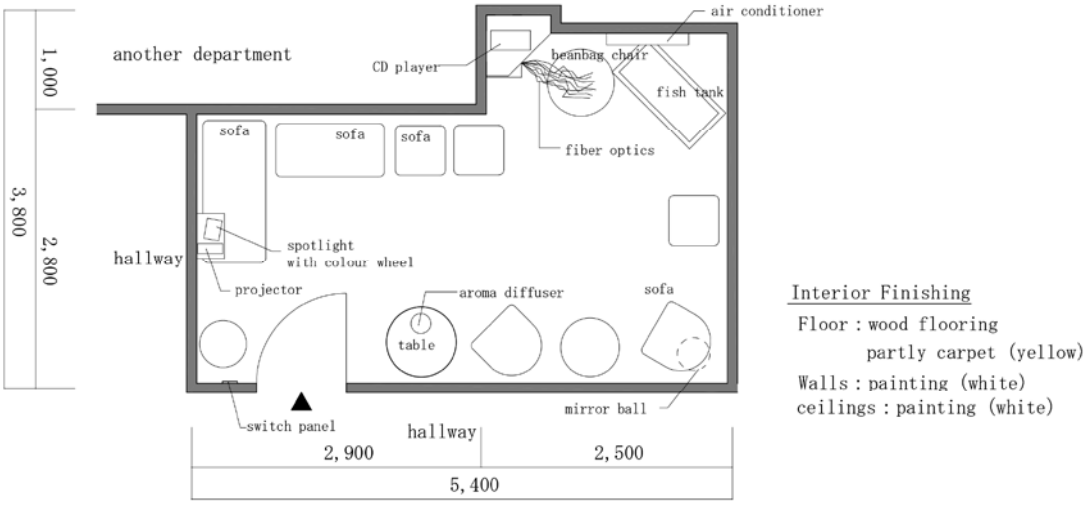

Figure.5 Floor plan of Osborne Park Hospital

4.1.2 Users and Use of MSSE

1) Users

Mainly, the room was used by expectant and nursing mothers who were in Osborne Park Hospital with her partner or the partner and their infants. Some of them used the room during labour only once and others made use of it repeatedly when they breastfed or felt stress.

If they use the room after the childbirth, it is usually a couple days later from the event. It results from that women tend to have depression and worries after a couple days past[13]. Basically, they did not use the room with staff except for when they needed some explanation or assistance.

2) Timing in use

The users were able to access the room 24 hours for free. On average 3 or 4 groups a day used it and they stayed for about 2 hours. Some users used it only for approximately 20 min but others made use of it for more than 8 hours. Most users who stayed there for short time aimed to breastfeed their baby.

3) Staying style in MSSE

While the users were in the room, they did things they felt like doing, for example talking with the partner, reading magazines or newspapers and using some equipment. However, environmental controls such as arranging furniture and turning equipment on and off were mostly done by the partner.

4) Points staff mind running MSSE

Some points that staff minded running the room are given below①, ②.

① Basically, only one group could use the room simultaneously to respect their privacy.

② To make sure their privacy more firmly, staff knocked the door strongly when they get in.

4.1.3 Effects result from using MSSE

According to staff, some effects of the MSSE to the users were found as follows①~④.

①Some users distracted themselves from labour by focusing on lighting patterns on the wall from the projector, changing lighting patterns of the fiber optics.

② For infants, comparing to the case when they were outside of the room they tended to be calm and sleep well.

③ In consequence it was easier for mothers to breastfeed infants and it reduced the burden of them.

④ The partners also had some concerns or stress. The MSSE could alleviate them and make partners relaxed. In addition, talking each other leisurely in the room which their privacy was protected also relaxed them and relieved their concerns.

Figure.7 MSSE(MSS equipment turned off)

Figure.8 MSSE (MSS equipment turned on)

Figure.9 Projector and Spotlight

Figure.10 Fiber optics

4.2 A case study on Healing and Learning Saloon Prism

4.2.1 Purpose of installation and spatial composition

1) The purpose of installation

Generally, mothers who raise infants tend to have worries and feel fatigue[14]. It has been needed for that people to be given some supports such as massages[15] and temporally child cares[16]. Therefore, in Healing and learning Saloon Prism (hereinafter referred to as Prism), featuring MSSE relaxation and refreshing effects, the MSSE was installed for the following objectives.

① To ease of stress from parenting and refresh themselves by spending their time in the unusual environment.

② To review the attitude toward the child recalling when they gave birth and being relaxed.

2) Outline of institute

Prism is a saloon located in a residential area in Shinagawa Ward, Tokyo and opened in 2009. It provides beauty supports, psychological counseling and mother coaching. The mother coaching assists in reflecting on the relationship between parents and children and deepening the ties. As a part of the programmes, MSSE was being employed. The mother coaching is one of its programmes which takes about an hour and it also has an art therapy[*1] and a drawing coaching[*2]. The saloon is on the first floor of a wooden two-storied shop dwelling and one of the rooms is being used as the saloon.

3) Outline of MSSE

In Prism, The MSSE has been installed for the mother coaching since it was open. The room was shared with the place for other therapies (Fig. 11). MSSE equipment was set up when the room was made use as the MSSE (Fig.12, 13).

The floor area was 18.6 m^2 and users took off their shoes when they got in. In this room, wood flooring partly a yellow and brown based carpets were installed. On the ceiling and walls it was papered white. The curtain was white and brown based. Installed MSSE equipment was as follows ①~③ (Fig.12).

①As visually stimulating equipment, there were a

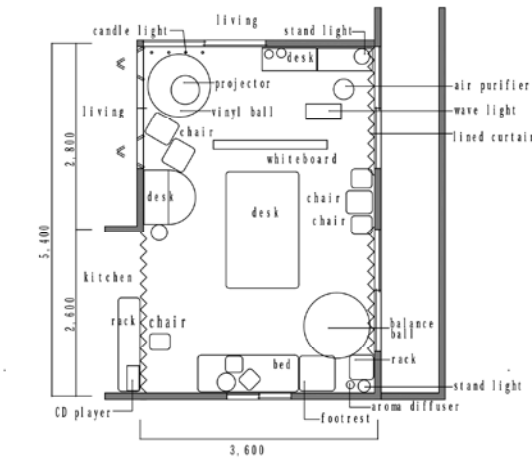

Figure.11 MSSE in Prism(Under Art therapy)

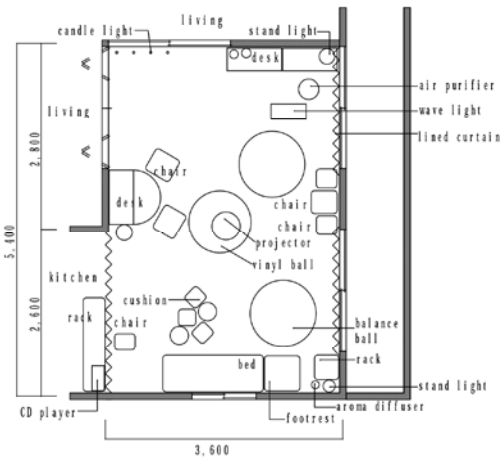

Figure.12 MSSE in Prism(Under MSS therapy)

Figure.13 MSSE in Prism

Figure.14 Projector

projector and some electric candles (Fig.14). These candles were purchased in variety shops. Therefore, they did not cost very much. Moreover, they did not have wiring. Which means it was easy to re-create similar spaces at their home.

② As for auditory stimulating equipment, a CDplayer and a healing CD was set up.

③ For olfactory stimulating equipment, an aroma diffuser and an orange and grapefruit aromas which promote users relaxation[1)] were arranged. In addition, there were two air purifiers with plasma wave, an air conditioner, an electric carpet and a fun.

4) Devices for designing MSSE

To design the room, some points were considered as follows ①~③.

① For accident prevention: In order not to make the room be angular, rounded furniture was installed because children used the room too. Additionally, they were arranged along by the walls so as not to hit and get hurt when it was dark.

② For noise reduction: To absorb footsteps the electric carpet was set up even in summer. Furthermore, it was located far away from the boulevard and there was little traffic.

③ During the therapy the room could not be ventilated because doors and windows were closed up. For this reason two air purifiers were installed.

4.2.2 Users and use of MSSE

1) Users

Mostly the MSSE was used by mothers with infants and they experienced the room only once. In contrast, some users re-created the MSSE since most equipment was not expensive and easy to buy. Currently the room was used once a couple of months as a part of the mother coaching. According to staff, the reason why the room was not used frequently was that users did not really demand to use it and it was difficult to advertise it due to a lack of members of staff.

2) Timing in use

The MSS therapy took 10~15 min. The reason why it was shorter than usual MSS therapies was that this therapy was made for a part of the mother coaching and after this, the art therapy starts. There were no differences of time to use because staff kept the time.

3) Staying style in MSSE

At first users drew illustrations freely as the art therapy. Secondly, staff set up the MSSE and the therapy was performed. The users lie down on the carpet and were explained for the MSS therapy at the beginning. Next they were instructed to image some colours and sceneries inhaling audibly through the nose and breathing out. After changing what they picture about 7 times, the therapy finished. Subsequently, staff turned the light on and all of them shared what they were feeling and what colours made breathing easy or

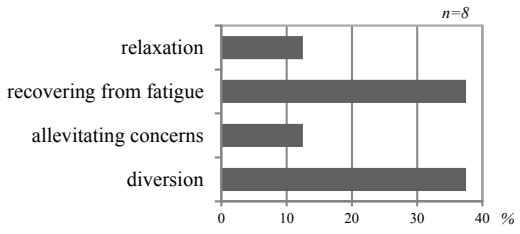

Figure.14 The purpose of use of MSSE (SA)

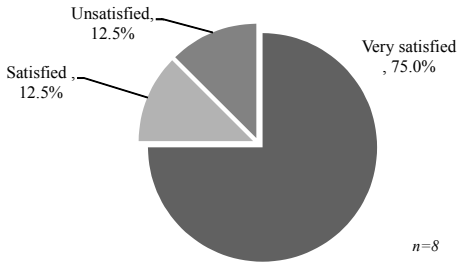

Figure.15 Satisfaction of the MSSE (SA)

Table.3 The effects that the users of Prism realized (Excerpt from the open-ended question)

- It was like holistic and helped to take a good rest for my brain. (40years old woman)
- the well-balanced darkness and music relaxed me so much. (47years old woman)
- It was so comfortable and quiet that I was about to fall asleep. (34years old woman)
- After the therapy I was totally refreshed and that enabled me to think calmly (30years old woman)
- From the beginning it was so comfortable and I felt asleep. I have not relaxed that much for long. (32years old woman)
- It was my first time to get that kind of therapy, though I was feeling worm atmosphere and relaxed being surrounded by colourful lights. (27years old woman)
- After such a long time I could be alone and feel stiffness in my body relieved staying in the darkness and listening relaxing music. (29years old woman)
- The way of breathing in the therapy make me feel warm (41years old woman)

hard. Then the art therapy started and they drew again and got counseling comparing these two pictures.

4) Points staff mind running MSSE

The following ①, ② are points that staff minded running MSSE.

① In order to make users concentrate the MSS therapy, staff tried not to make noise such as footstep and speaking voice.

② A musical instrument called 'Chanbell' was sounded so that users could move to the next therapy smoothly and comfortably.

4.2.3 Effects result from using MSSE

In order to clarify the effects of MSSE, a questionnaire survey was conducted to users of Prism in August2012. A function aiming at mothers raising infants was held then at Prism to introduce MSSE. Therefore, users were more than usual and some of them stayed in the room for long. In total 8 pieces of questionnaire were distributed and collected. Respondents were women at the age of 27~47(average 35). Regarding the time of use, the most was 0~30min (5 persons). As to the purposes of the use, refreshing and recovering from fatigue were the most (3 persons) (Fig.14). The satisfaction with the MSSE is shown in Fig.5. It is revealed that most of the users were satisfied with the room. The effects that users felt in reality appear in Table3. The results means they realized that they were relaxed and able to think calmly.

In this MSS therapy it is clarified that relaxation and recovering from fatigue were achieved and user were mostly satisfied with the effects.

4.3 Closure

It is revealed that the hospital and the aromatherapy saloon had the following characteristics. In the obstetrics and gynecology, MSSE was installed to calming the users down when they got mentally unstable. In addition, it was used for alleviating pain of labour and breastfeeding in a quiet room where they did not need to mind public eyes. The time of use was not limited and they could make use of it anytime they hope. Users were expectant and nursing mothers and her partner and their infant (in total 1~3 person) and they spend their time on talking, reading and so on. The users seemed to like it and used it repeatedly and it was used more than 100 times a month. Regarding the spatial composition and the use, users controlled the environment by themselves. Therefore, a switch panel was installed on the wall next to the door in order to change the environment easily as they wish.

In the aromatherapy saloon, MSSE was used as a part of the mother coaching. The mother coaching was designed to build up the better relationship with her infant being relaxed. The MSS therapy was introduced to reset the conception and move to the next therapy smoothly. The room was used by mostly mothers with infants once a couple of months. However, it was earning high reputation among the users. As to the spatial composition, it was the multi use type. Some small institutes have these types of the room. Recently the number of small saloons managed privately has been increasing and many of them are just like Prism. Therefore, I would suggest that from now on a number of MSSE whose type is multi use will rise.

5. Conclusion

This study investigated purposes, spatial compositions, the use and its reputations. As a result some findings were gained as follows.

① Regarding spatial compositions, installed equipment and interior colour tones were mostly designed based on the ISNA standard, although in 4 cases, floor area were less than 25 m^2. In spite of the scale, it is found that staff in aromatherapy saloons was satisfied with it.

② It is revealed that most of the users were people who had worries or stress and non-handicapped children. In addition, some users suffered from PTSD and others were with sleeplessness.

③The MSSEs proved to being used for counseling・aromatherapies or calming down. As well as that, in the obstetrics and gynecology, alleviating pain from labour was expected.

④ The MSSE in the aromatherapy saloon was highly evaluated among its users.

In conclusion, the present study has demonstrated spatial compositions and the use on MSSEs for non-handicapped people, which is rare even in the world. Moreover, reputations from the users of the aromatherapy saloon have been clarified. Further research on the spatial compositions, its use, and evaluation of institutes that were not clarified in this study is recommended.

Note

*1) Art therapy was a counseling based on the pastel drawing that users painted at the beginning and end of the therapy.

*2) In the drawing coaching the mothers and infants communicated with each other painting.

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