

REVIEW ARTICLE

The effectiveness of Snoezelen as multisensory intervention among individual who exhibit maladaptive behaviour

Shahrizal Selamat, Aliff Amiruddin, Akehsan Dahlan^{*}, Masne Kadar

Centre of Occupational Therapy Studies, Faculty of Health Sciences, Universiti Teknologi MARA (UiTM), Kampus Puncak Alam, 42300 Bandar Puncak Alam, Selangor, Malaysia

Abstract:

Snoezelen has been implemented to children, adults and elderly with disabilities. It provides multisensory environment that allows individual to select and received sensory input in desirable types and amount. A systematic approach to evaluating the evidence of effectiveness of Snoezelen towards individuals with maladaptive behavior is needed. Studies investigating the effectiveness of Snoezelen were systematically searched for using standardized keywords across five databases. The initial search identified 2300 references. From these articles, five met the inclusion criteria and were subject to full methodological appraisal. One study was primarily qualitative and four studies primarily quantitative design. Studies were appraised using McMaster critical appraisal tools and data were extracted and synthesized. The finding from this synthesis review were summarized narratively which was based on the research question, inclusion criteria and outcome reported. Most of the studies demonstrate a low impact of the Snoezelen on the maladaptive behavior. Maladaptive behavior will occur after Snoezelen is terminated and the effects is not generalized to other setting. Overall, the findings from this systematic review indicate that there was a main concern on the usage of Snoezelen as intervention and the impact of the intervention itself toward the sample of the studies.

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^{*} Corresponding Author

Akehsan Dahlan, PhD
Email:akehsan@uitm.edu.my

1. INTRODUCTION

The Snoezelen is a multisensory intervention approach that has been implemented with various populations. Snoezelen has been implemented to children, adults and elderly with disabilities. It provides multisensory environment that allows individual to select and received sensory input in desirable types and amount. Snoezelen has been used in treatment for various conditions like severe brain injury [6], Severe and profound mental retardation [10, 15], elderly with severe confusion, children with intellectual disability, individual with intellectual disabilities, Rett syndrome, adult psychiatric patients, autistic, older patient with dementia and many more. However, the effectiveness of Snoezelen as a treatment strategy has been question for many years. Thus, the objective of this systematic review is to identify the effectiveness of Snoezelen among individual who exhibit maladaptive behaviour. There has been increased interest in the use of Snoezelen as multisensory environment globally. Various study has been tested on the impact of Snoezelen across ages and disabilities. Various studies had compared the effectiveness of Snoezelen with other intervention strategies including Snoezelen with playroom [15], Multisensory environment with control group

[9], Snoezelen room, living room and outdoor environment observation, Snoezelen room, activity of daily living skill training, and vocational skill training, and Multisensory therapy with activity therapy [2]. The literature finding identified the effect of Snoezelen is varied.

The outcome of some research shows that the behavioural and physiological correlates that the Snoezelen has a positive short-term effect on children with mental retardation. This is evidence from the significant decrease in maladaptive behaviours and from the significant increase in adaptive behaviours that were seen in Snoezelen during treatment [15]. The other study conducted and identified that some participants became calmer and more relaxed while in the multi-sensory environment (MSE), however, the objective measures of behaviour outside the treatment settings revealed no difference between the MSE and control conditions [9].

Study identified that there tend to be a reduction in stereotype and increase in engagement when participants went from their living room to the Snoezelen room, and a return of these behaviours to pre-Snoezelen levels in the living room [4]. Positive effects in the Snoezelen room did

not carry over to the living room. Apart from that the result also shows that the outdoor condition provides more impact in reducing behaviour, followed by Snoezelen and living room.

In a study aggression and self-injury were lowest when the individuals were in a Snoezelen room, followed by Vocational skills training and ADL skills training. Snoezelen may provide an effective context for reducing the occurrence of self-injury and aggression [16]. In addition, study conclude that multisensory therapy could be used to provide leisure and promote psychological well-being, rather than for reducing problem behavior [2].

While study showed a result which indicated that the three clients had different responses to the room, but no client showed a decrease in disruptive behaviours while in the Snoezelen condition compared to baseline, and one client showed a clear pattern of increased disruptive behaviour during the Snoezelen periods [11]. The finding does not support the contention that Snoezelen rooms are effective interventions for aggressive behaviour in this client population. Thus, this systematic review intended to evaluate the impact of Snoezelen toward individual at varying ages who exhibit challenging behaviours.

2. MATERIALS AND METHODS

Search strategy

A literature search was conducted in following databases: PubMed, Cochrane Library, ScienceDirect, Springer and Google Scholar. After a review of the publications indexes, these databases were selected for the inclusive nature of their content. Parameters were set to find articles published between 1990 to 2019, in English.

Inclusion criteria

The 16 articles were reviewed to determine the qualification for acceptance into the study. Articles that met the inclusion criteria are included in this writing. The inclusion criteria of the studies must address one of the five variables:

1. Self-stimulatory behaviour
2. Self-injurious behaviour
3. Aggression
4. Relaxation
5. Stress referenced within a Snoezelen environment

Studies that not met the inclusion criteria were excluded on final writing. Also, the studies with the primary focus population with dementia were excluded because they are not applicable to the study. Figure 1 shows the flowchart on detailing stages of this systematic review.

3. RESULT AND DISCUSSION

The finding from this synthesis review were summarized narratively which was based on the research question, inclusion criteria and outcome reported. The results of the systematic review were divided into two types of studies which are qualitative or quantitative research design.

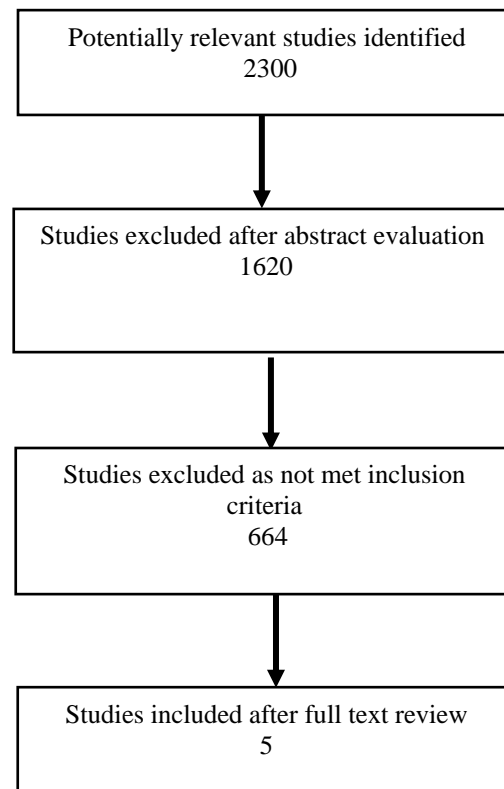


Figure 1: Flowchart detailing stages of systematic review.

The critical appraisal of both research designs was explained as in Table 1 and Table 2. While the overview of findings from the included studies were explained as in Table 3.

Critical Appraisal of Qualitative Research Studies

Table 1: Qualitative studies: McMaster Critical Review Form – Qualitative Studies.

	McKee et al., 2007
Study Purpose	✓
Was the purpose and/or research question stated clearly?	
Literature	✓
Was relevant background literature reviewed?	
Study Design	✓
Was a theoretical perspective identified?	
Sampling	✓
Was the process of purposeful selection described?	
Data collection	
Clear and complete description of site	✓
Clear and complete description of participants	✓
Role of researcher and relationship with participants	✓
Identification of assumptions and biases of researcher	NR
Procedural rigor was used in data collection strategies	NR
Data analysis	
Data analyses were inductive	NR
Findings were consistent with and reflective of data?	✓
Decision trail developed?	NR
Process of analyzing the data was described adequately?	NR
Process of analyzing the data was described adequately?	✓
Did a meaningful picture of the phenomenon under study emerge?	✓
Overall rigor	
Was there evidence of the four components of trustworthiness?	
Credibility	NR
Transferability	NR
Dependability	NR
Confirmability	NR
Study Conclusions and implications	
Conclusions were appropriate given the study findings?	✓
The findings contributed to theory development and future practice/research?	✓

Notes: *Only the key questions on the left hand side have been reported, without the question regarding study design and methods used as this is covered in data extraction;

✓ refers to criteria met within study and

X refers to criteria not met.

Abbreviation: NR, not reported.

Critical Appraisal of Quantitative Research Studies

Table 2: Quantitative studies: McMaster Critical Review Form – Quantitative Studies.

	Shapiro et al., 1997	Martin et al., 1998	Singh et al., 2004	Chan et al., 2005
Study Purpose				
Was the purpose and/or research question stated clearly?	✓	✓	X	✓
Literature				
Was relevant background literature reviewed?	✓	✓	✓	✓
Sample				
Was the sample described in detail?	✓	✓	✓	✓
Was sample size justified?	✓	NR	✓	✓
Outcomes				
Were the outcome measures reliable?	✓	✓	✓	✓
Were the outcome measures valid?	✓	✓	NR	✓
Role of researcher and relationship with participants	✓	✓	✓	✓
Intervention				
Intervention described in detail?	✓	✓	✓	✓
Contamination was avoided?	NR	NR	NR	X
Co-intervention was avoided?	NR	NR	NR	X
Results				
Results were reported in terms of statistical significance?	✓	✓	✓	✓
Were the analysis method(s) appropriated?	✓	✓	✓	✓
Clinical importance was reported?	✓	✓	NR	NR
Drop-outs were reported	✓	NR	NR	NR
Conclusions and implications				
Conclusions were appropriate given the study method and results	✓	✓	✓	✓

Notes: *Only the key questions on the left hand side have been reported, without the question regarding study design and methods used as this is covered in data extraction;

✓ refers to criteria met within study and

X refers to criteria not met.

Abbreviation: NR, not reported.

Narrative Synthesis of Qualitative and Quantitative Studies

Table 3: Key metric and findings for included studies.

	Design	Participants/ population	Sample size	Model/ measures	Key findings	Limitation
McKee et al., 2007	Qualitative	Autistic adult with the highest levels of aggression and destructive behaviour	3	The effect of Snoezelen on the aggressive and destructive behaviour of three adult clients with developmental disability	The present results did not support the hypothesis that a Snoezelen room would effect a decrease in aggressive and destructive behaviour in three autistic and developmentally delayed inpatients	<ol style="list-style-type: none"> 1. Less sample (3 people) 2. They all experience same environment 3. Not comparing the Snoezelen effect with another validated intervention 4. Assessment of reliability is not conducted
Chan et al., 2005	Quantitative	mental retardation	89	The impact of multisensory therapy on participants' emotional state, level of relaxation, challenging behaviour, stereotypic self-stimulating behaviour (SSB) and adaptive behaviour (AB).	Multisensory therapy could be used to provide leisure and promote psychological well-being, rather than for reducing problem behaviour	The study was carried out in one institution in Hong Kong and would need to be replicated in other settings to test the generalisability of the findings.
Martin et al., 1998	Quantitative	severe/ profound learning disability	27 adults	To evaluate the behavioural effects of multi-sensory environment (or Snoezelen) on individuals with severe and profound learning disabilities who exhibited challenging behaviour, with reliable assessment procedures, longer follow-up data and using a control condition	Some participants became calmer and more relaxed while in the MSE, however, the objective measures of behaviour outside the treatment settings revealed no difference between the MSE and control conditions. Challenging behaviour maintained by sensory consequences showed no greater responsivity to the MSE than to the control condition	Not stated

	Design	Participants/ population	Sample size	Model/ measures	Key findings	Limitation
Shapiro et al., 1997	Quantitative	Moderate or severe mental retardation	20	To determine the short-term efficacy of the Snoezelen in the management of children with mental retardation	No significance different were found for demographic data. For behaviour, it shown significantly higher when the sample are exposed to the Snoezelen room.	Not stated
Singh et al., 2004	Quantitative	Individuals with development disabilities	45 adult	To determine the effects of Snoezelen room, Activities of Daily Living skills training, and Vocational skills training on aggression and self-injury by adults with mental retardation and mental illness	The results provide some confirmatory evidence for earlier findings that maladaptive or challenging behaviours of individuals with mental retardation are reduced in a Snoezelen room	Not stated

4. CONCLUSION

Overall, the findings from this systematic review indicate that there was a main concern on the usage of Snoezelen as intervention and the impact of the intervention itself toward the sample of the studies. The areas of limitation and improvement also were stated in most of the studies in which areas for improvement including improving the literature review based on the Snoezelen usage.

One limitation of the narrative synthesis is that it was informed that most of the latest citation and studies related in using the Snoezelen as intervention were limited and not easily accessible. Most of them are not specifically investigate the contextual variables of the studies in relation with the Snoezelen usage.

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