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A computer-aided program for helping patients with moderate Alzheimer's disease engage in verbal reminiscence

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ABSTRACT

This study assessed a simple computer-aided program for helping patients with moderate Alzheimer's disease engage in verbal reminiscence. In practice, the program was aimed at fostering the patient's verbal engagement on a number of life experiences/topics previously selected for him or her and introduced in the sessions through a friendly female, who appeared on the computer screen. The female asked the patient about the aforementioned experiences/topics, and provided him or her with positive attention, and possibly verbal guidance (i.e., prompts/encouragements). Eight patients were involved in the study, which was carried out according to non-concurrent multiple baseline designs across participants. Seven of them showed clear improvement during the intervention phase (i.e., with the program). Their mean percentages of intervals with verbal engagement/reminiscence ranged from close to zero to about 15 during the baseline and from above 50 to above 75 during the intervention. The results were discussed in relation to previous literature on reminiscence therapy, with specific emphasis on the need for (a) replication studies and (b) the development of new versions of the technology-aided program to improve its impact and reach a wider number of patients.

1. Introduction

People affected by Alzheimer's disease experience a progressive decline of their condition, with a gradual loss of their independence in daily functioning (Ambrose, 2012; Bernick, Cummings, Raman, Sun, & Aisen, 2012; Melrose et al., 2011; Perilli et al., 2013; Perry, Monaco, Fadda, Caltagirone, & Carlesimo, 2014; Sikkes et al., 2013; Soto et al., 2012; Spalletta et al., 2012;

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Wilson et al., 2012). A variety of pharmacological and behavioral intervention strategies have been suggested as means to slow down their deterioration process, support their positive engagement, and improve their overall social appearance (Bharwani, Parikh, Lawhorne, VanVlymen, & Bharwani, 2012; De Vries, 2013; Ferrero-Arias et al., 2011; Kim, Yoo, Jung, Park, & Park, 2012; Schecker, Pirnay-Dummer, Schmidtke, Hentrich-Hesse, & Borchardt, 2013).

Frequently recommended behavioral intervention strategies include, among others, (a) technology-aided programs for assisting with the performance of daily activities, (b) orientation programs with or without the use of technology for supporting independent indoor travels, (c) reality orientation therapy for helping the patients update and maintain functional knowledge of their personal details and of the reality around them (e.g., time and space), and (d) memory training for helping the patients retrieve information about daily activities and persons (and related names) in particular (Boller, Jennings, Dieudonné, Verny, & Ergis, 2013; Caffò et al., 2012, 2014; Cavallo et al., 2013; Giordano et al., 2010; Lancioni et al., 2010, 2012; Lancioni, Perilli et al., 2013; Lancioni, Singh, O'Reilly, Sigafoos, et al., 2013; Onder et al., 2005; Small, 2013; Spector, Woods, & Orrell, 2008).

Another behavioral intervention strategy advocated for the same patients is the reminiscence therapy (Blake, 2013; Chiang et al., 2010; Karimi et al., 2010; Kim et al., 2006; Okumura, Tanimukai, & Asada, 2008; Serrani Azcurra, 2012; Wingbermuehle et al., 2014; Woods et al., 2012). This approach is based on the view that recalling/reminiscing life stories can help the patients improve their psychological engagement and wellbeing. In practice, the patients are led to reminisce various experiences of the past and, generally, the process is carried out within a group context. The topics on which the patients are led to reminisce normally vary across sessions and also across studies. Common topics involve, among others, family history, general life events and related people, positive achievements, and positive relationships. The intervention sessions can last 60 min or more and involve the direct presence of staff or experts who lead the reminiscence process (Chiang et al., 2010; Karimi et al., 2010; Okumura et al., 2008; Tanaka et al., 2007).

Although large support is available for this approach, some questions can be raised about it. One of the questions concerns the variations in the basic arrangement and implementation of the approach (e.g., in the length of the sessions, whether sessions involve a group of persons or a single person, and the topics used for reminiscence) and, thus, the overall comparability of the studies' outcomes (Brooker & Duce, 2000; Mackinlay & Trevitt, 2010; Subramaniam & Woods, 2012; Tadaka & Kanagawa, 2007; Tanaka et al., 2007; Tolson & Schofield, 2012; Van Bogaert et al., 2013; Wang, 2007; Woods et al., 2009). Another question concerns the feasibility and applicability aspects of the therapy. For example, group sessions may be easily viable with patients with mild levels of Alzheimer's disease but may be problematic with patients in the moderate stage of the disease (i.e., particularly in the lower half of it). The latter patients might be less involved in the reminiscence process, and possibly marginalized, within a group context, and might also find sessions of about or over 60 min (e.g., Chiang et al., 2010; Karimi et al., 2010) too long. The use of short individual sessions, which might be largely preferable for these patients, could still prove excessively expensive in terms of staff/expert time (Woods et al., 2009, 2012).

The present study was aimed at assessing a basic computer-aided program to help individual patients with moderate Alzheimer's disease engage in verbal reminiscence. Prior to the study, extensive observations were carried out within centers for persons with Alzheimer's disease and other dementias, in order to gain a better understanding of patients' characteristics and of program conditions suitable for them. Those observations led to the identification of three main groups of patients and two types of program. The first group of patients was deemed likely to benefit from a simple computer-aided program, in which a friendly person appearing on the computer screen (a) asked about relevant past experiences to elicit verbal engagement/reminiscence, (b) provided positive attention, and possibly (c) used verbal guidance (prompts/encouragements). The second group of patients was thought likely to benefit from a computer-aided program provided that such program extended the previous one with a module for detecting and answering the patients' recurrent questions. Lack of answers to their questions could, in fact, make these patients frustrated and eventually disinterested in the program. The third group of patients was considered to be disinterested and unwilling to participate in computer-aided programs. This study was directed at eight patients of the first group and used a computer-aided program matching the one described for them above (i.e., with the friendly person asking about past experiences, and giving attention and guidance). To assess the impact of the program, research assistants recorded the patients' verbal engagement/reminiscence during the computer-aided sessions as well as during baseline and control sessions.

2. Method

2.1. Participants

The eight participants (Ruth, Barbara, Marie, Denise, Anne, April, Gail, and Albert) were 77–89 ($M = 83$) years old. They were recruited for this study because they were considered to belong to the first group mentioned above and therefore likely to benefit from a relatively simple computer-aided program. They had a diagnosis of moderate Alzheimer's disease and their scores on the Mini Mental State Examination varied between 10 and 17 ($M = 13$) (Folstein, Folstein, & McHugh, 1975). They attended centers for persons with Alzheimer's disease and other dementias in which they received supervision/guidance for minimal forms of self-care activity (e.g., hand washing) or light physical exercise and could access simple leisure events, such as listening to music, or other events such as group prayers. Given their reduced level of functioning and limited activity involvement, they spent large periods of the day sitting with other patients and receiving only occasional staff intervention/attention. This situation was deemed unfavorable, as it tended to decrease their alertness and general engagement, and