Autobiographical memory: 
A proposal for mnemonic stimulation in elderly individuals

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Abstract
The objective of this study was to document the autobiographical memory intervention process for elderly individuals developed by Serrano, Latorre, and Montañes (2005) and to verify the impact on cognition, depressive symptoms, anxiety, and quality of life. The study design was a quasi-experimental research approach with pre- and post-intervention evaluations, where ten individuals of both sexes, divided into a control group (CG = 5) and an experimental group (EG = 5) were investigated. There were no gains in cognition, depression, anxiety, and quality of life scores. However, the application of the designed protocol for each group allowed elderly individuals to interact and socialize in an environment capable of favoring autobiographical recall. It is suggested, however, that professionals, when applying the script, have the necessary flexibility for a possible extension in the number of elderly individuals, time and sessions.

Keywords: autobiographical memory; elderly; reminiscence therapy; emotion; cognition.

MEMÓRIA AUTOBIOGRÁFICA: UMA PROPOSTA DE ESTIMULAÇÃO MNÊMICA EM IDOSOS

Resumo
O objetivo deste estudo foi documentar o processo de implantação de uma intervenção de memória autobiográfica para idosos desenvolvida por Serrano, Latorre e Montañes (2005) e verificar o impacto na cognição, nos sintomas depressivos, na ansiedade e na qualidade de vida. O delineamento do estudo foi quase experimental, com avaliações pré e pós-intervenção, sendo investigadas dez pessoas idosas de ambos os sexos, divididas em grupo controle (GC = 5) e grupo experimental (GE = 5). Não houve ganhos em escores cognitivos, depressão, ansiedade e qualidade de vida. Contudo, a aplicação do protocolo proporcionou a interação e socialização dos idosos em um ambiente capaz de favorecer a rememoração autobiográfica. Sugere-se, porém, que os profissionais, ao aplicarem o roteiro, tenham flexibilidade necessária para possível ampliação de número de idoso, tempo e número de sessões.

Palavras-chave: memória autobiográfica; idoso; terapia de reminiscência; emoção; cognição.
MEMORIA AUTOBIOGRÁFICA: UNA PROPUESTA DE ESTIMULACIÓN MNÉMICA EN ANCIANOS

Resumen
El objetivo de este estudio fue documentar el proceso de implantación de una intervención de memoria autobiográfica para ancianos desarrollada por Serrano, Latorre y Montañes (2005) y verificar el impacto en los síntomas depresivos, cognición, ansiedad y calidad de vida. El diseño del estudio fue casi experimental con evaluaciones pre y post-intervención, siendo investigaron diez ancianos de ambos sexos, divididos en grupo control (GC = 5) y grupo experimental (GE = 5). No hubo, ganancias en los escores de cognición, depresión, ansiedad y calidad de vida. Sin embargo la aplicación del protocolo ortogarda la interacción y la socialización de los ancianos en un ambiente capaz de favorecer la rememoración autobiográfica. Se sugiere, sin embargo, que los profesionales, al aplicar el guión, tengan flexibilidad necesaria para posible ampliación del número de ancianos, tiempo y sesiones.

Palabras clave: memoria autobiográfica; ancianos; terapia de reminiscencia; emoción; cognición.

1. Introduction
The use of well-designed, appropriate and well-planned interventions is a growing challenge in clinical practices focused on elderly individuals, especially in Brazil, where the psychology of aging seeks to document interventions and respond to the growing dilemmas of old age. Thus, aging accompanied by dementia syndromes and high levels of depressive symptomatology are realities that tend to increase in the coming years, especially in advanced old age (Gutierrez, Salmazo da Silva, Guimarães, & Campino, 2004; Santos et al., 2017). The creation of mental health interventions and services is an urgent issue in order to promote mental health for elderly individuals (Canineu, Stella, & Samara, 2006; Engelhardt, Laks, Rozenthal, & Marinho, 1998; Netto, 2010; Santos et al., 2017).

One of the interventions mostly used in the literature are training interventions and cognitive stimulation, especially for their potential to remedy cognitive deficits and, in parallel, to increase mental health, socialization and quality of life indicators, and to reduce depressive symptoms (Reijnders, Van Heugten, & Van Boxtel, 2013; Chariglione, Janczura, & Belleville, 2018). According to Huntley et al. (2015) cognitive stimulation refers to a set of non-specific activities that aim at the stimulation of multiple cognitive domains and that can assume characteristics
that vary according to the interest and established goals, such as reminiscence therapy, orientation to reality, and cognitive stimulation allied to social and sensory motor activities.

Of these interventions, reminiscence therapy has shown benefits for cognition and for reducing the depressive symptoms of the elderly population (Gil et al., 2008; Gonçalves, 2006; Gonçalves, Albuquerque, & Martín, 2008; Salazar-Villanea, 2012). The focus of reminiscence therapy is to stimulate autobiographical memory and reassessment of the individual's life story, enabling coping with important life events, building new perspectives on oneself, and giving meaning to life (Westerhof & Bolhmeijer, 2014).

One of the first theorists to explore the role of reminiscence interventions was the psychiatrist and researcher Robert Butler in the 1960s, suggesting that reminiscences could play an adaptive role against finitude (Butler 1963, 1974, 2002). In this context, reminiscences can significantly contribute to the promotion of psychological well-being in the elderly population, whose function is to redefine the social role, increasing their social participation in the transmission of knowledge and culture; the sharing of coping mechanisms and emotional regulation, in which past experiences can help shape perceptions of the present, and have more adaptive responses to dilemmas and problems; and integration of the self, reflecting on the past as a strategy for creating more flexible perceptions about oneself (Gil et al., 2018; Westerhof & Bolhmeijer, 2014).

The material used, therefore, focuses on memory as a sense of personal identity, (Izquierdo, 1989), responsible for the construction of the autobiographical repertoire that solidifies with the course of life and allows the individual to preserve their identity throughout the variations that compose the experiences of daily life.

In Brazil, few studies have investigated the application of methodologies of reminiscence sessions in healthy elderly individuals. In a review of the literature, Golino & Golino (2017) did not identify any Brazilian studies with specific interventions of reminiscence therapies. However, some documented interventions have associated sessions of autobiographical memory with games and discussion of social roles of elderly individuals (Oliveira, Costa, Santos, & Lemos, 2012), while other interventions were outlined in meetings in which individuals discussed their life stories through nine weekly 2-hour meetings, using as resources readings, reflec-
tions, transcription of narratives for illiterate individuals, recording of stories in journals and group dynamics (Cabral, Amaral, & Brandão, 2009).

In this sense, the methodologies used in these types of interventions vary according to the objectives, public and materials used. According to Marques (2012), there is a great difficulty in understanding the efficacy of reminiscence therapy intervention, since there is no structural model that allows adopting similar intervention parameters. In some interventions there is no script of how the meetings are planned (Yen & Lin, 2017).

Given the scarcity of models applied in Brazil, it is relevant to investigate the potentialities, limitations and necessary adjustments for their application in the Brazilian environment, considering the population characteristics and routes previously applied in other studies. There are currently several proposals for reminiscence therapies, some of them aimed at people with dementia, as documented by Woods et al. (2018) in a systematic review of 22 international studies investigating 1972 patients; and for cognitively healthy elderly individuals, according to the methodology used by Serrano et al. (2005), in Spain. The model of Serrano et al. (2005) guides the intervention in a roadmap of issues with thematic axes, which can facilitate the application and the design by allowing the professional to make adjustments and adaptations which are compatible to the profile and evolution of the group of elderly individuals, for example: time dimensioning and the types of triggering issues and subjects that need further study. In this sense, interventional research in Aging Psychology can provide data on efficacy, progress and points that need to be modified and adjusted based on the profile and needs of the participants. In a research with groups of elderly individuals by Ivoti, in the state of Rio Grande do Sul (Brazil) that used the participants’ life story analysis, Wosiack, Berlin, and Santos (2013) suggest that psychosocial interventions need to be systematic and well delineated, with the aim of contributing to individual self-development and self-help, and to reduce the isolation of the elderly individual. The objective of this study was to document the implementation process of an autobiographical memory intervention for elderly individuals developed by Serrano et al. (2005), in a cohabitation center for elderly individuals in the Federal District (Brazil) and verify its impact on cognition, depressive symptoms, anxiety and quality of life.
2. Methodology

2.1 Participants

The sample consisted of 10 elderly individuals from the Centro de Convivência do Idoso (CCI, Elderly Cohabitation Center) of the Catholic University of Brasília (Brazil), of both sexes (9 women and 1 man), all of who were healthy, literate and aged between 61 and 83. These participants composed a convenience sample and therefore, not probabilistic.

Figure 2.1.1 illustrates the allocation process of the participants and the sample loss that occurred during the research.

As exclusion criteria, it was considered: elderly individuals with diagnosis of dementia; illiterate; with auditory, visual and/or motor impairments that made the
tests and interventions impossible. Only one research volunteer was excluded because they were illiterate and did not fit into the inclusion criteria. Those who met the requirements for voluntary and unpaid participation in the research signed an Informed Consent Form. This project and the Informed Consent Form were submitted to the Comitê de Ética em Pesquisa/Comissão Nacional de Ética em Pesquisa (CEP/CONEP, Research Ethics Committee/National Commission for Research Ethics) system through the Plataforma Brasil of the Ministry of Health, and was carried out in compliance to the required standards of scientific studies with human beings (CAAE No. 53888816.7.0000.0029).

2.2 Methodological design

It was a study conducted under the quasi-experimental research approach with pre- and post-intervention evaluations. Evaluations were performed to verify the effect of autobiographical memory stimulation using the reminiscence technique and the sample of elderly individuals was subdivided into two groups: Experimental Group (EG) and Control Group (CG). Both groups were submitted to the pre- and post-intervention tests and the subdivision was randomized. The elderly individuals of the control group, post-intervention and after data collection for the research, were also submitted to the stimulation process, due to ethical reasons.

2.3 Instruments

The pre- and post-intervention tests included assessments to obtain the sociodemographic variables and the clinical conditions of the current state of the participants, considering the cognitive and emotional aspects of the individual. The following instruments were used:

- A sociodemographic questionnaire with information about age, sex, education, health aspects and family context.
- The Beck Anxiety Inventory (BAI), composed of 21 multiple choice questions, with a score ranging from 0 to 63 points, with the following criteria: a score of 0 to 7 points being considered the minimum degree of anxiety; from 8 to 15 points, of mild anxiety; from 16 to 25 points, of moderate anxiety; and from 26 to 63 points, of severe anxiety (Cunha, 2011).
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• The Beck Depression Inventory (BDI), composed of 21 items with categories of affective and somatic cognitive behavioral manifestations of depression. Each category contained between four or five alternatives and the score for each category ranged from zero to three, with a zero score being the absence of depressive symptoms and a three-score being the presence of intense symptoms. In the total sum of points, the criteria were: scores up to 9 – absence of depression; from 10 to 18 – mild to moderate depression; from 19 to 29 – moderate to severe depression; and from 30 to 63 – severe depression (Cunha, 2011).

• The WHOQOL-bref quality of life assessment, composed of 26 questions that assess the general quality of life and are divided into four domains: physical, psychological, social relations and the environment. This test is answered on a Likert scale ranging from 1 to 5, being 1 nothing and 5 completely. The subject makes reference to the last two weeks and the higher the score, the better quality of life;

• The Mini Mental State Examination (MMSE) that evaluates global cognitive performance through subdomains, orientation in time and space, memory, attention, calculation, language and constructive praxis. The questionnaire consists of 30 questions, to which the candidate scores one point for each correct answer. Its correction protocol was validated for the Brazilian population by Bertolucci, Brucki, Campacci e Juliano (1994) and perfected by Brucki, Nitrini, Caramelli, Bertolucci e Okamoto (2003).

2.4 Procedures

The autobiographical memory intervention sessions were based on the protocol of Serrano et al. (2005), using questions directed to the life cycle, always with a positive tone and with a smaller number of questions so that it would be well tolerated by elderly individuals, in order to avoid fatigue. The original intervention focused on four individual sessions based on the individual’s life review, with the first three questions focusing on a specific age of life (Childhood, Adolescence and Adulthood) and the last one focusing on a more specific evaluation of the individual’s life course. In the present study, the same sessions were used in a group format with six weekly sessions of 90 minutes each: two assessment sessions (pre- and post-interventions) and four intervention sessions entitled: child-
hoood, adolescence, adulthood and life summary; without procedural modifications in relation to the original intervention, except for the fact that the interventions were performed in group sessions and not individually. The Control Group, during the six weeks of the Experimental Group interventions, followed the specific activities proposed by the CCI of the Catholic University of Brasília, while the EG accumulated CCI activities and reminiscence interventions. Both Control and Experimental groups were evaluated through an individual protocol, at the same time and following the sequence of tests: BAI – BDI – WHOQOL-bref – MMSE.

2.5 Data analysis

For a more detailed description of the implementation of the autobiographical memory intervention, it was used the qualitative analysis of the participants’ statements regarding the perception of the intervention and the topics covered, framing the analysis within the scope of the interventional research in Psychology (Szymanski & Cury, 2004). For that, the testimonies were transcribed in full. Regarding the quantitative data, possible differences between the pre– and post–test of the stimulation group (SG) and the post–tests of the stimulation group (SG) and the control group (CG) were compared. To verify the existence of a statistically significant difference between the groups, the Wilcoxon paired test was used for independent samples and to verify the existence of any differences between these groups, the same test was used for the related samples. The significance level adopted for the tests was p < 0.05.

3. Results

3.1 Application and development of autobiographical memory intervention

The application of the proposal by Serrano et al. (2005) indicated that the participants had, throughout the sessions, difficulties in evoking memories with positive connotations and ease in evoking memories with negative connotations. In spite of this, autobiographical memory stimulation provided, according to the reports by the participants of the last session (summary of life), a space of speech and identification of their own stories or of points in common through the listening of the other stories of life, as it can be verified in the following reports:
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I think these activities we do here are wonderful. I guess I had never talked so much about my life, and I did not know that talking about life would do me so well (Person 01).

What was most important to me was knowing that the things I’ve been through and the fears I’ve had, were also experienced by my colleagues. Today I understood that it is never too late to get the weight of life off my shoulders a little bit. I wanted more (Person 02).

Remembering my childhood, with my parents and my siblings was the most beautiful part. It seems like I went back in time, and to a very good time, without problems (Person 03).

I got so emotional and I cried every day, but it was like I always said: Do not worry, I’m very happy to review my life and think about the people who went through it. I would stay in this group for as long as possible (Person 04).

I do not even know how to thank you. At 83 years-old, it was one of the most beautiful things I’ve ever experienced. Thank you very much for the invitation to participate (Person 05).

In this sense, the application of the group protocol demonstrated favorable results for its application and possible to be well delineated in the professional practices of the psychologist in the care of elderly individuals. However, only the time of execution of the activities was insufficient for the satisfactory accomplishment of the original protocol. Therefore, it is necessary to plan a larger number of sessions so that the themes are better worked and the reports of the participants valued. The development of the sessions and the detailing of the triggering questions are described in the study by Gonçalves (2006).
3.2 Evaluation of the intervention in cognition, depression, anxiety and quality of life

Table 3.2.1. Socio-demographic characterization of Control Group (CG) and Experimental group (EG).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EG (n = 5)</td>
</tr>
<tr>
<td>Age</td>
<td>71.4 (63.0-83.0)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>5.0</td>
</tr>
<tr>
<td>Male</td>
<td>0.0</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Did not complete Elementary School</td>
<td>1.0</td>
</tr>
<tr>
<td>Completed Elementary School</td>
<td>1.0</td>
</tr>
<tr>
<td>Did not complete High School</td>
<td>1.0</td>
</tr>
<tr>
<td>Completed High School</td>
<td>2.0</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1.0</td>
</tr>
<tr>
<td>Married</td>
<td>0.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>1.0</td>
</tr>
<tr>
<td>Widowed</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Note: The “age” variable is represented by its mean value, with the range in parentheses. The “education” and “marital status” variables are represented by their frequency.

According to the sociodemographic characterization (Table 1), a large part of the sample was composed of women and the educational level of the experimental group was relatively higher when compared to the control group.
Table 3.2.2. Performance of the Control Group (CG) and the Experimental Group (SG) pre- and post-intervention regarding anxiety, depression, global cognition and quality of life levels.

<table>
<thead>
<tr>
<th></th>
<th>EG</th>
<th></th>
<th>CG</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre- M (R)</td>
<td>Post- M (R)</td>
<td>Pre- M (R)</td>
<td>Post- M (R)</td>
</tr>
<tr>
<td>BAI score</td>
<td>9.2 (5 -15)</td>
<td>7.4 (4 - 17)</td>
<td>7.4 (1 - 21)</td>
<td>6.4 (0 - 9)</td>
</tr>
<tr>
<td>BDI score</td>
<td>15.2 (10-17)</td>
<td>13.6 (5-22)</td>
<td>12.2 (0-34)</td>
<td>10.8 (0-34)</td>
</tr>
<tr>
<td>MMSE</td>
<td>26.6 (24 - 29)</td>
<td>26 (24 - 28)</td>
<td>25.8 (22 - 29)</td>
<td>26.6 (24 - 29)</td>
</tr>
<tr>
<td>Perception of quality of life</td>
<td>4.00*</td>
<td>4.20</td>
<td>4.00</td>
<td>3.80</td>
</tr>
<tr>
<td>Satisfaction with their own health</td>
<td>3.80</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Domain – LQ 1 – Physical</td>
<td>3.62</td>
<td>3.88</td>
<td>3.71</td>
<td>3.91</td>
</tr>
<tr>
<td>Domain – LQ 2 – Psychological</td>
<td>3.79</td>
<td>3.89</td>
<td>3.89</td>
<td>3.86</td>
</tr>
<tr>
<td>Domain – LQ 4 – Environment</td>
<td>3.47</td>
<td>3.52</td>
<td>3.42</td>
<td>3.42</td>
</tr>
</tbody>
</table>

BAI - Beck Anxiety Inventory; BDI - Beck Depression Inventory; MMSE - Mini Mental State Examination; M (R) - Mean (Range); LQ – Life Quality.

* Only data obtained from the average results are shown.

According to the data presented in Table 3.2.2, the groups did not differ statistically in relation to the BAI, BDI, WHOQOLbref and MMSE (p > 0.05).

Pre- and post-test comparison indicated that the program was not associated with changes in cognition, depressive symptoms, anxiety, and quality of life. However, there was a tendency to decrease in BAI and BDI scores, but without statistical differences between the groups.

4. Discussion

The results of this study indicate that autobiographical memory stimulation interventions represent an important tool for actions with elderly individuals, especially if they combine targeted, well-founded and well-delineated questions as
used in the present study. The method used by Serrano et al. (2005), adapted by Gonçalves (2006), proved to be useful for the effectiveness of the studied group intervention and can serve as a basis for autobiographical memory interventions with Brazilian elderly individuals. It is suggested, however, that professionals, when applying the script, have the necessary flexibility for longer and for a greater number of sessions, since in the present study this was an observed necessity.

As opposed to the findings of Salazar-Villanea (2012) and Gonçalves (2006), which indicated an increase in cognitive and emotional performance, in this study there was no documentation of gains. The reasons for this may be related to the small sample, configuring this study as a quasi-experimental, exploratory and descriptive, as also observed in the study by Chariglione and Janczura (2013). Although no objective gains have been documented in the tests, the stimulation of autobiographical memory provided, according to the reports of the participants, a space of speech and identification of their own stories or points in common through listening to other individual’s life stories, benefits that have already documented in other studies in the area (Butler, 2002; Westerhof & Bolhmeijer, 2014).

Regarding the absence of changes in mood and cognition measures, some studies indicate that changes in these domains follow complex relationships. Studies such as the one by Nascimento and Pergher (2011) support that there is an inverse correlation between autobiographical memory and depressive symptoms, in other words, the more intense the depression, the more nonspecific will be the autobiographical memory. In the study proposed by Gonçalves (2006), the sample submitted to the autobiographical memory recovery training registered a statistically significant decrease in depressive symptomatology and an equally significant increase in life satisfaction, even though it is not possible to conclude that these final results can be attributed to the stimulation provided.

Faced with such data, researchers have discussed how reminiscence therapy can be measured as an experimental methodology. As presented by Marques (2012), there is no standard model that allows adopting similar intervention parameters, and also the way to evaluate the effects of this technique is still poorly documented. Thus, the qualitative aspects of the intervention are the best parameters for analysis. According to Szymanski & Cury (2004), the analysis of the effectiveness of interventional research in psychology can help in the training of professionals, researchers, and in the development of services focused on the
needs and realities of the population. In this sense, the connections between theory and practice are fertile ground for the maturation of areas in Brazil, helping to detect adjustments, possibilities and overcoming challenges in the care of elderly individuals.

Another issue observed during the interventions was the difficulty of evoking memories with positive connotations and the ease of evoking memories with negative connotations. This is because, according to McGaugh (2013), the strength of memories of events varies according to their emotional significance, and therefore unpleasant experiences are more easily remembered than everyday life experiences.

The exchange of experiences and information with elderly individuals is still a form of social inclusion and a way to ensure the exercise of their full citizenship (Dalmolin, Leite, Hildebrandt, Sassi, & Perdonssin, 2011; Gil et al., 2018; Golino & Golino, 2017). The proposals of the Cohabitation Centers, as well as the extension project in which these participants are inserted, aim to provide this public with socialization, interaction and well-being. Thus, it is possible to infer that the fact that the participants of the stimulation group are in a cohabitation group already distinguishes them from the other participants not belonging to such spaces, because the socio-educational, physical, handcrafting and technological actions often provided by these entities (Wichmann, Couto, Areosa, & Montañés, 2013).

In addition to the opportunity to share their experiences, the stimulation of autobiographical memory performed in this study provided, according to the reports of the participants of the stimulation group, a space of speech and identification of their own stories or points in common through listening to other elderly individuals. This phenomenon, which enables a member of the group to find an affective equivalence and arouse similar emotions in the other members, was called as “the resonance” by Osorio (2003). Besides this, several specific phenomena of the group performance could be observed.

Therefore, the application of the group protocol of Serrano et al. (2005) demonstrated favorable results for replication in future studies by providing the interaction and socialization of elderly individuals in an environment capable of favoring autobiographical recall. In addition to the aforementioned possibilities, it is suggested for future applications and evaluations of this type of stimulation the
composition of a representative and heterogeneous sample that is capable of offering data susceptible to generalization and studies focused on elderly individuals with depressive symptomatology or with mild cognitive impairment.

The time for performing the proposed activities, despite having precisely followed the proposed schedule for the accomplishment of this research, was insufficient due to the group speech session and for the observation of the psychologist responsible for the research, but the adaptation of time limits during the stimulation sessions was not considered as a loss, in view of the emotional relevance, observed through the speech of the participants of the stimulation group. Therefore, for future research purposes, it is suggested to apply the protocol in a larger number of sessions.

The results obtained in this study revealed the need for further studies related to the investigation of autobiographic memory stimulation. Especially in the replication of systematized intervention. According to Westerhof & Bolhmeijer (2014), after 55 years of the first interventions proposed by Butler (1963), the research area will benefit if considering interventions with longitudinal designs, that is, research made with the objective of documenting the long-term benefits of the interventions. In addition, it is necessary to develop comparative studies of different types of collection and recall analysis methodologies, and the discussion of cognitive and personality theories to investigate the relationships between cognition, personality traits and mental health in old age.

Other issues for advancing studies in this field include mapping the participants' socioeconomic and mental health conditions, developing randomized clinical trials, and adapting to the culture of the researched population (Yen & Li, 2017). In this way, it is proposed that future studies raise the possibility of encouraging the development of strategies to delay or minimize the cognitive declines of aging, concentrating efforts towards a more comprehensive analysis of quantitative and qualitative results.

References


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