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## **Narrative Exercises in Alzheimer's Dementia. The Problem of Writing Disorders \***

### SUMMARY

One of forms of working with the patient, justified in Alzheimer's disease, is to stimulate speech combined with writing (and reading). My own practical solutions – with the use of writing (and reading) – offer narrative exercises thematically oriented towards the patient (his biography), this purpose being served by notebooks intended for this group of patients (Domagała 2007). The present article focuses on the problem of writing disorders – the approach to a patient has to be individualized in this area: such a conclusion follows from Western literature, in which writing disorders in Alzheimer's disease are discussed as an agraphia/dysgraphia problem. The skills of individual persons are highly diversified as they are dependent on the functioning of the patient in the sphere of verbal and written communication during the period before falling ill, and on changes occurring in the course of the disease. Selected problems are illustrated using the example of my own patients (the structure of the written text; the problem of writing down basic units of the language system: updating of the patterns of cursive and block letters, and capital and small letters; the problem of perseveration).

The subject matter of narrative skills is studied as part of the research project "Narrative and Its Disorders in the Course of Alzheimer's Disease. The Scale of Narrative Skills in Alzheimer's Dementia" (project manager: Dr Aneta Domagała; 39<sup>th</sup> Ministry of Science and Higher Education competition of research projects).

**Key words:** Alzheimer's dementia; rehabilitation of communication; narrative skills; written communication disorders.

### INTRODUCTION

The objective of logopedic management in dementive diseases is to stabilize the patient's interactive capabilities (Grabias 2008). Because speech disorders in Alzheimer's dementia are progressive, irreversible and occur with other cognitive and non-cognitive disorders, therapeutic measures can be taken only to a limited extent, depending on the patient's current abilities. One of forms of working

with the patient, justified in Alzheimer's disease, is to stimulate speech combined with writing (and reading); the description of Alzheimer's aphasia has for years emphasized the fact that patients retain the writing and reading ability comparatively long (then it is reduced to an automatic form) (Herzyk 2005).

My own practical solutions – with the use of writing (and reading) – offer narrative exercises thematically oriented towards the patient (his biography), this purpose being served by notebooks intended for this group of patients (Domagała 2007). The function of the notebooks towards the patient is to organize and collect essential information for him, to enable him to access it and remember facts for his own needs in the early stage of disease and for the purpose of contact with his environment. For the therapist (and other persons in the patient's environment), the function of the notebooks is to provide information about the patient necessary in daily contact with him, to enable verification of what the patient is speaking about, to help understand his utterances owing to reference to the previously written down information. The notebooks were designed as an external source of linguistically formed information in a manner suitable for the patient and his interlocutors (in the first place, the notebooks are filled in by the patient himself and with the help of another person, whereas at the second stage of therapeutic measures, the information collected therein become the basis for rehabilitation classes). The fact that written information can be helpful to patients is shown *inter alia* by my own studies currently being conducted in a group of 120 patients under the project "Narrative and Its Disorders in the Process of Alzheimer's Disease. The *Skala sprawności narracyjnych* [Scale of Narrative Skills] as a diagnostic instrument in Alzheimer's Dementia" (project manager: Dr Aneta Domagała; 39<sup>th</sup> competition of the Ministry of Science and Higher Education). In the course of these studies situations were recorded in which patients made use of their notes or documents to seek necessary information in order to be more reliable respondents (e.g. they showed their school and student IDs, and notebooks so that the interlocutor learnt about their education and achievements: they could no longer speak about that without such help or remember basic facts).

The possibility of narrative stimulation taking into account the writing down of texts is closely connected with determining the patient's current level of writing/reading ability, and (which is equally important in written communication), with identification of the patient's current abilities and limitations pertaining to: 1/ the thematic scope of utterances constructed by himself or jointly created in the course of interaction (the knowledge of reality retained in the patient's memory, the possibility of updating information from a specific thematic area), 2/ the level of the systemic language performance (available language factors, difficulties experienced in speaking and the possibility of using a therapist's help in case they occur). (Domagała 2012). The present article focuses on the problem of writing

disorders, which was signaled in the earlier publication on the stimulation of narrative behaviors in dementia (Domagała 2012).

Regardless of the abovementioned general opinion about writing as a comparatively well-retained ability in Alzheimer's dementia, the approach to a patient has to be individualized in this area: such a conclusion follows from Western literature, in which writing disorders in Alzheimer's disease are discussed as an agraphia/dysgraphia problem (in the broad sense, covering both orthography and the graphic aspect of writing). Scholars unanimously point to a high variation of the agraphia syndrome and the lack of one pattern of its evolution (Lambert et al. 2007), and to heterogeneous profiles of writing in patients with Alzheimer's disease (Luzzatti et al. 2003). What is important for logopedic therapy is that some of the patients studied in the early/moderate stage of the disease did not exhibit symptoms of agraphia or only minimal deficits could have possibly been diagnosed in them. In Western studies these were respectively: 30% of subjects (Hughes et al. 1997), 13% (Luzzatti et al. 2003), and 25.5% (Lambert et al. 2007). On the other hand, cases of profound disorders manifested in the impossibility of writing even the subject's own name were reported (Luzzatti et al. 2003).

Luzzatti et al. found that the relationship between writing disorders and the progression of disease was not always obvious while Lambert et al. (2007) pointed out a positive correlation in this aspect, taking into account the measuring indicators relating to the tasks used in their own studies, as did Kumar and Giacobini (1990), who showed a relationship between agraphia and the severity of cognitive disorders. Studies emphasize that it is difficult to generalize in the case of Alzheimer's dementia; the picture of writing disorders and their duration are diversified, the total deterioration in writing ability occurring only in the late stage of the disease as is also the case with language (Luzzatti et al. 2003).

There were attempts to make agraphia a factor that differentiates subtypes of Alzheimer's dementia but this proved impossible because of the lack of correlation between the patient's age, the time of disease occurrence, its duration, and the history of cases in the family (Kumar, Giacobini, 1990).

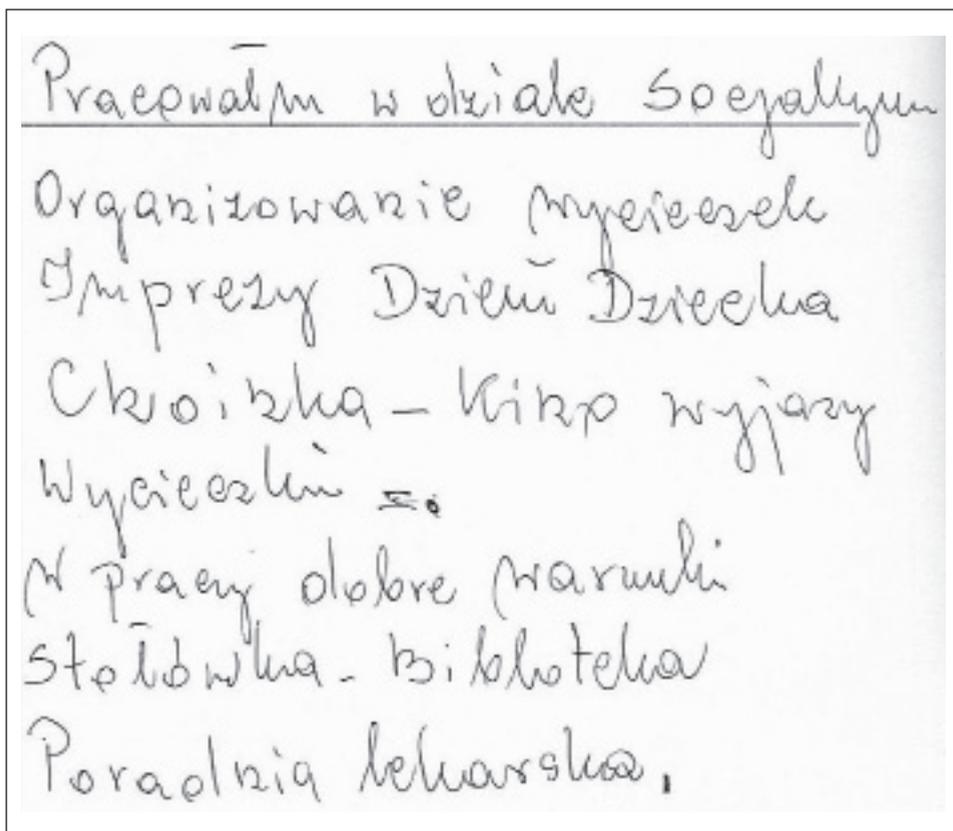
The latest PET-based studies showed that in Alzheimer's disease dysgraphia is a manifestation of the dysfunction of both the brain hemispheres and it is related to the disorder of visual-spatial functions; unique studies on the non-linguistic aspects of dysgraphia were made possible by the Korean language, which is characterized by the non-linear order of graphemes in the space corresponding to syllable units (Yoon et al. 2012).

## WRITING DISORDERS IN ALZHEIMER'S DEMENTIA – EXEMPLIFICATION OF PROBLEMS

Narrative exercises combined with writing may have different aspects depending on whether 1/ the patient can (comparatively) construct a written utterance by himself; or whether 2/ his written utterances are impaired, with dysgraphic symptoms, but owing to his partly retained skills the level of performance is satisfactory when the patient jointly creates a text with a therapist, using the latter's help; or 3/ the patient is unable to write a text and requires that the therapist replace him in this role; nevertheless, he is able to co-create the text to some extent in its formal-linguistic and content aspects. The skills of individual persons are highly diversified as they are dependent on the functioning of the patient in the sphere of verbal and written communication during the period before falling ill, and on changes occurring in the course of the disease. Below are illustrated selected problems using the example of participants in speech-therapy classes conducted as part of the functions of the day-care center for patients with dementive diseases, run by the Lubelskie Stowarzyszenie Alzheimerowskie [Lublin Alzheimer Society] as a continuing rehabilitation center (PFRON [State Fund for Rehabilitation of the Disabled] 2009 program).

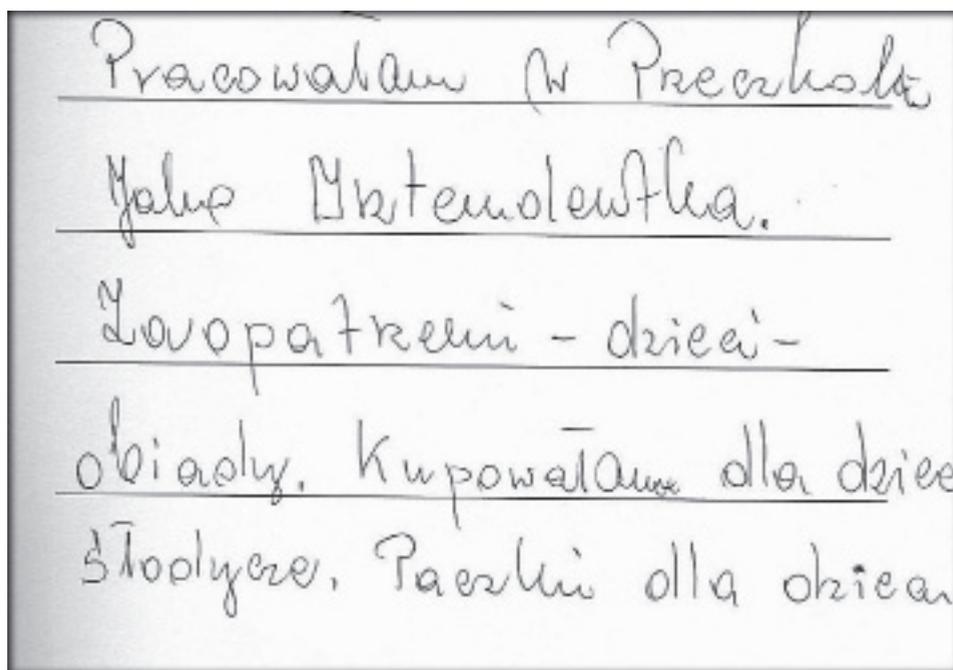
1/ Patient M. Z., female, moderate dementia; age: 73 years, education: secondary (1/ the text content for writing down: determined in the conversation with the therapist; 2/ the language form of the text: the text constructed by the patient, written down successively; the patient shows a great need of independence and reluctance to use the therapist's help) – the patient's abilities pertaining to the written form of utterance are illustrated in example 1.

The above-cited conclusions of Luzzatti et al. (2003) concerning the relationship between dysgraphia and the progression of Alzheimer's disease need to be complemented in accordance with the findings of these scholars: the level of correlation is low but it increases in complex tasks such as, for example, the written description of a picture or writing down sentences in a spontaneous situation (various language and non-language phenomena then interfere under the condition of dementia). Simple test tasks enable a closer examination of selected dysgraphia symptoms whereas writing disorders observable at the text level may have more complex determinants (Hughes et al. 1997). A reduced amount of information in the text, a diminished number of words, syntactic simplifications, and grammatical errors are the features of written texts that are commonly indicated already in the early stage of dementia as reported by Groves-Wright et al. (2004), although the results of their own studies signal that deficits may have a subtle character. At the moderate stage, however, they unquestionably grow.



Example 1a. M. Z. – Exercise book “Dawniej [The Past]”, subject: “Praca [Work]” (excerpt)

M. Z.’s texts are interesting in this respect because the patient writes them without the therapist’s interference. She maintains that she has no problems with writing: she was always a good pupil and employee (she worked in several workplaces and did different kinds of office work). In class she exhibits self-reliance and independence, and she is convinced of her high language performance. Her verbal utterances are elaborate but she is often embarrassed when producing written utterances: her problem here is the structure of the written text. The message tends to be not entirely coherent, the syntactic structure is simplified (with a tendency for non-sentence utterances), and text segmentation is wrong (see example 1a: “*Pracowałam w dziale Socjalnym* [I worked at the Social Services Department] / *Organizowanie wycieczek* organizing trips] / *Imprezy Dzień Dziecka* [Events Children’s Day] / *Choinka – Kino wyjazy* [Christmas Party – Cinema trips (in a group)] - / *Wycieczki* [Trips]. / *W pracy dobre warunki* [Good conditions at work] / *Stółówka. Biblioteka/ Poradnia lekarska* [Canteen. Library. Outpatient clinic.” The patient has a problem with distinguishing sentences/non-sentence



Example 1b. M. Z. – Exercise book “Dawniej [The Past]”, subject: “Praca [Work]” (excerpt)

utterances with capital letters and with full stops: it happened that she started all words in a sentence with a capital letter, for example: “*Rozpoczęłam Pracę Wiek 20 Lat* [I started work at the age of 20 years]”; she sometimes omits punctuation marks or sometimes marks them very distinctly (see the end of text in example 1a). Words separated by dashes (as in the utterance “*Zaopatrzenie – dzieci – obiady* [Supplies – children – lunches]” – see example 1b), form a condensed way of imparting information. Large letters enable the patients to fill in the pages easily, leaving her convinced of the high level of task performance and rich content (the text in example 1a was written in an A4 notebook, with two or three words in one line). With this manner of writing there are few errors. As regards the spelling of the words, letter omissions are observed (see example 1a – “*Pracowałam* [I worked]” → *Pracowałm*, “*wyjazdy* [trips/journeys]” → *wyjazy*), as well as the omission of function words (e.g. “*w wieku* [at the age of]” → *Wiek*). Distortions in the final parts of words manifest themselves sometimes (see example 1b, in words: “*przedszkolu* [(in) kindergarten]”, “*kupowałam* [I bought]”, “*zaopatrzenie* [supplies]”, “*paczki* [parcels]”, “*dzieci* [children]” /twice/) – these are connected with touch-ups, discreet alterations or not: there are then other structural elements including letters (cf. “*dla dzieci* [for children]” → *dla dziee* – example 1b). Distortions in the final part of words also appear in normal writing, when we are noting

down something quickly or carelessly but we want to be able to decode the text later owing to the initial parts of words; however, the patient's handwriting is distinct, large, and she responds to the distortions in the final parts of words by correcting them (she is aware of the problem with writing).

2/ Patient Ł. Z., female, moderate dementia; age: 68 lat, education: secondary (1/ the text content for writing down is determined in conversation with the therapist, using information provided by the patient's carer; 2/ the language form of the text: sentences to be written down constructed by the patient with the therapist's considerable help and written successively) – the patient's abilities pertaining to the written form of utterance are illustrated in example 2.

What attracts attention in the patient is the problem (discussed in literature) of writing down basic units of the language system: updating of the patterns of cursive and block letters, and capital and small letters.

Lambert et al. (2007) found that patients with Alzheimer's dementia give up cursive writing for printing: this phenomenon grows with the progress of the disease (in their studies: in the mild phase – 10% of subjects, in the moderate phase - 53%). In one of the performed tasks the subjects also exhibited problems with changing small letters into capitals, and with the choice of letter size. The scholars found that patients cope better while copying letters than while writing down letters called by the researcher because they have problems with updating graphomotor letter patterns.

Case studies show interesting phenomena in this area. For example, in their patient, Pietro et al. (2011) pointed out qualitatively different errors in writing letters in the case of block letters (here: substitution related to the letter size e.g. A → a), and in the case of the cursive script (here: letter substitution, e.g. *r* → *n*, never disturbing the consonant-vowel status, however). They demonstrated that in the case of handwriting the predictor of the occurrence of substitution was the visual-spatial resemblance of letters rather than their resemblance in the graphomotor aspect (here: e.g. visual-spatial features make O resemble D, while graphomotor ones make T resemble L – a movement towards the vertical direction and then horizontal). These findings are important for the discussion on letter representation (cursive/block and small/capital letters) in the mind and on the hierarchical model of writing actions.

With regard to this aspect of dysgraphia, in Ł. Z.'s texts single block letters are most often present in words written in the cursive script (see example no. 2 – the manner of writing the letter B in words “*lubię* [I like]”, “*najbardziej* [most]”, and at the same time the correct writing of the letter *b* in the word “*cebule* [onion]”); sometimes a transition from cursive to printed writing within one word was observed (see example no. 2 – the writing of the word “*truskawki* [strawberries]”, of which a larger part was written with block letters), which may be addi-

## LUBIĘ JEŚĆ:

Sporysz & owoców i warzyw najbarwniej

lubię: paprykę, jaskółki, maliny, truskawki,

czarna porzeczka, pomidory, groszek zielony,

cebule.



tionally related to letter omission (e.g. the patient writes "Na obiad [for dinner]" in the form "NA Oiad", she switches to the cursive script as if she noticed the problem and wanted to change the way of writing, but she omits the letter B/b in the act). The words written in block letters are less prone to disruption – e.g. when the patient was writing words while doing crossword puzzles together with the logopedist, she consistently used block letters and an error did not appear more often than once in a twenty-word crossword, usually in the initial part of the word (e.g. the word REKA (hand) was begun with the letter *r*).

The problem with writing letters in Ł. Z.'s texts has a varying intensity and it may occur together with other writing disorders (as in example no. 2). When the patient is in a better condition, there are, however, several-sentence texts with errors consisting exclusively in the introduction of single block letters into the cursive script, their size being adjusted to the sizes of the other letters in the word..

3/ Patient K. Z., female, moderate dementia phase; age: 68 year, education: elementary (1/ the text content for writing down is determined on the basis of conversations with the patient and her accounts, using the information from the carer and the care center personnel; the patient's utterance are often poor in information; 2/ the language form of the text: sentences for writing down are constructed together with the therapist; it is then helpful to dictate next words of the sentence to the patient) – the patient's abilities pertaining to the written form of utterance are illustrated in examples 3a and 3b.

Note should be taken of the patient's perseveration problem in respect of writing, which is diagnosed in Alzheimer's dementia as persistent repetition of letters and their elements.

Neils-Strunjas et al. (1998) presented an interesting case study of a man (higher education, at a moderate stage of the disease and with fast progressing cognitive disorders) with intense writing disorders in the form of perseveration. They found that his usual manner of writing (the cursive script) was more prone to perseverations than the seldom used writing in block letters. The patient wrote better when using capital block letters than small cursive letters. In the print writing the letters that were most often prone to perseveration were I, R, and E as complete signs; note was also taken of repetition of single elements, perseverations of movement from bottom to top (as in the letter M) and from left to right (as in the letter E). In the case of the cursive script the most repeated letters were *m*, *n*, *r*, *v*, *y*, with the 4- or 5- times perseverations of a letter or a particular movement being quite frequent (this number of repetitions was not reported in printed handwriting). In the material collected from the patient, perseverations (letter repetitions) constituted almost 49% of the total number of all errors (the following error categories were taken into consideration: substitutions, omissions, letter additions,

**MOJE ZAINTERESOWANIA. CO LUBIĘ ROBIĆ?**

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m. oglądać filmy serial. k.p.  
 mój ulubiony  
 masa ma duszki

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ten film jest wyświetlany  
 codziennie codziennie  
 o godzinie 16<sup>30</sup>  
 występują:

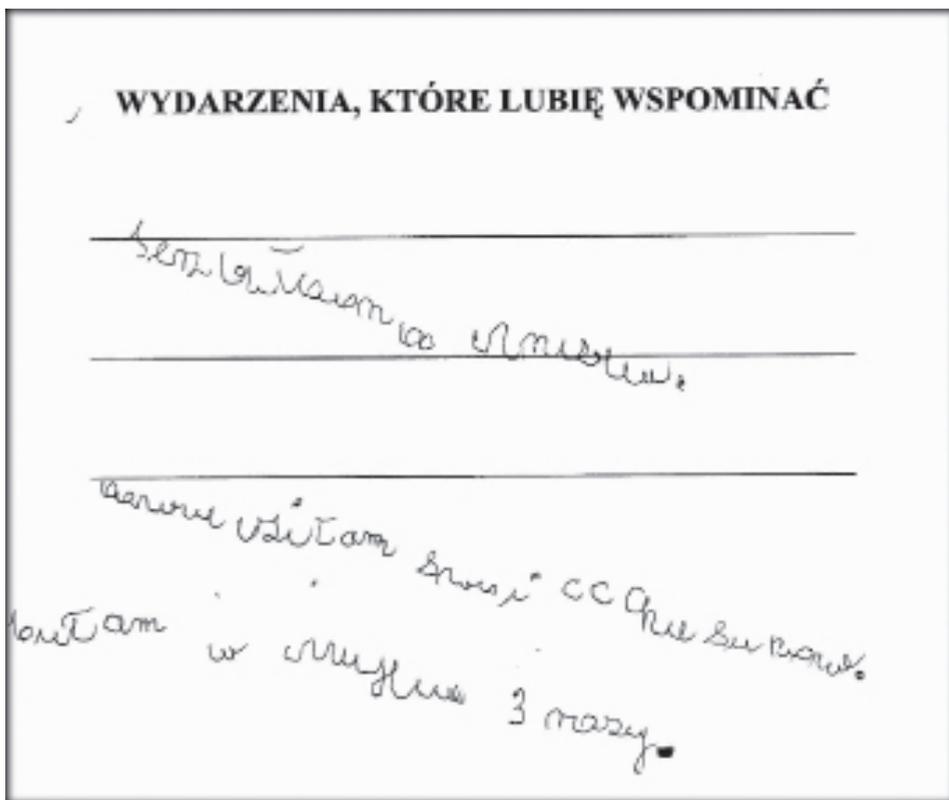
brak  
 tytułu

Stefania  
 masa  
 sara sprekta  
 masa  
 zaryk  
 wamborn




16

Example 3a. K. Z. – Exercise book: “Teraz [Now]”, subject: “Moje zainteresowania [My interests]. Co lubię robić [What do I like doing]?” [here: the written down text: *Oglądać filmy* [Watch films]. *Mój ulubiony serial: “Moda na sukces”* [My favorite serial ‘The Bold and the Beautiful’]. *Ten film jest wyświetlany codziennie o godz. 16.30* [This movie is shown everyday at 1630] *Występują* [Starring]: (she lists the names of the characters)]



Example 3b. K. Z. – Exercise book: “Dawniej [The Past]”, subject: “Wydarzenia, które lubię wspominać {Events I like remembering} [here: the written down text: *Byłam w Londynie*. {I was in London} *Odwiedziłam swoich synów*. {I visited my sons} *Byłam w Londynie 3 razy* {I have been to London 3 times}].

wrong order of letters; interestingly enough, almost 10% of errors were not classified at all because it was impossible to associate them with the patterns of specific letters). In respect of perseveration typology, the scholars diagnosed continuous perseverations in the patient's handwriting that consisted in the continuing of an activity, in its persistence: in this case it resulted in the repetition of a letter or its element. When discussing the results the authors referred to findings in literature on so-called central dysgraphia, pointing out that graphomotor disorders can also produce severe writing deficits – it is believed that disorders of this type appear late in the course of the disease, without excluding, however, their occurrence even at the early stage.

Regarding the problem of perseveration, in K. Z.'s texts there are both repetitions of structural elements of letters (see the letter *m* in the word “odwiedziłam [I visited]” – example 3b), as well as those of single letters (see the three-times

repetition of the letter *c* in the word “swoich” – example 3b). Within a word, perseverations are not confined, however, to single letters or their structural elements, which is illustrated by example 3a (see in the word: *jest* [is] → *jestst*).

As far as kinds of perseveration are concerned, we need to examine the problem of the continuity/non-continuity of phenomena more closely. In examples 3a and 3b difficulties with writing the letters *u*, *y*, and *i* can be observed. In such words as “ulubiony [favorite]” and “wyświetlany [shown (about a movie)]” the writing of the letter *y* involves an additional movement – similar/identical for the letters *y* and *u*, as if these letters were joined together (see example 3a). At the same time the letter *u* in some words becomes a substitute for the letter *y* (and the letter *i*). For example, the patient pronounces the names of characters of her favorite film in an acceptable way (here: she does not know English), but this is not reflected in the spelling. While the spelling consistent with her pronunciation would have the form of “rycz” (English: Ridge), “sali” (English: Sally), the patient, when dictating to herself slowly, writes down: *salu*, *rucz*. In accordance with her own pronunciation, however, she correctly writes the letter *y* e.g. in the word: *eryk* (English: Eric) as in example 3a. The substitution of letters: *y* → *u* is also reported in Polish words (e.g. *byłam* [I was] → *bulam*, see example 3b), when there is no need to use the phonological mechanism of conversion (phoneme – grapheme). In example 3b the letter *u* also appears as an additional letter at the end of a word (see in the word: *swoich* → *swoicccchu*). These examples permit us to perceive the reproduction of the letter *u* (repetition of the movement characteristic of this letter as in: *y*, *i*) in terms of both continuous and non-continuous perseverations. Continuous perseverations described by Neils-Strunjas et al. (1998) are easier to identify in a text, whereas non-continuous perseverations raise doubts as regards symptoms, especially when they occur with other kinds of writing disorders in a patient. The problem of non-continuous perseverations requires that we should take into consideration various kinds of determinants of errors classified as substitutions and letter additions.

## RECOMMENDATIONS

The knowledge about writing disorders in Alzheimer’s dementia steadily increases, starting from A. Alzheimer’s first findings, who studied the case of Augusta D.- Lambert et al. (2007) remind that the patient was found to be unable to write several consecutive words, and she broke the writing activity after writing a single word (which was recorded as “amnesic writing disorders”). Because, as other scholars demonstrated later, writing disorders are non-homogenous in this group of patients, narrative exercises combined with writing down a text require identification of the most important problems:

1) Even if the patient's language performance is still high, the structure of the jointly constructed text should be comparatively simple so that the writing down will not be beyond the patient's capabilities and that the content will be later accessible to him to the highest degree possible. A several-sentence text can be written down or one can confine oneself to writing single sentences or words combined with the illustrative material. When written communication is significantly disturbed, a photo, a drawing, or a postcard (also a stamp, a recipe cutting, a dried leaf, etc.) make it possible to specify verbal information, involve emotions and thus remind the patient about or familiarize him with a particular area of knowledge.

2) Taking into consideration specific dysgraphia symptoms, it is possible, during exercises that involve writing, to use the suggestions in literature on the subject that are cited in the present article in reference to the selected problems herein, and to suggest to the patient that he should copy the text instead of writing down a dictated utterance (here: with problems with updating letter and word patterns) or that he should write down the text in block letters instead of the cursive script (here: with intense perseverations or letter substitution in handwriting).

3) When the activity of writing is highly disturbed and the text is illegible and incomprehensible, doing exercises in a written form no longer achieves the assumed goal. The therapist may consider substituting for the patient when writing down utterances. Despite intense writing difficulties, patients sometimes want to continue writing down the text by themselves in situations in which they are emotionally involved. They enjoy their own work. Nevertheless, because of the poor quality of handwriting, they will be replaced by the therapist while doing some of the exercises, which will make it possible to record the most important information, their memories (for inspection by the patient and by other people around him). When the text handwritten by a patient turns out to be far from comprehensible (it will be difficult to decode later), the therapist may append a sheet of paper with useful information obtained in the course of implementation of a particular theme of the classes.

On the basis of their own studies, Ryan et al. (2009) show what great benefits can be derived from writing by patients with dementia disease. This channel of information transmission allows people losing their mental capacity to have more time to think, to be more flexible when constructing utterances, and helps them sort out their thinking. By adopting a broader perspective of the examination of phenomena, the scholars demonstrate, using the example of patients at the early stage of Alzheimer's disease, that writing can be a response to the loss of the status of a competent interlocutor and the previously performed social roles; it helps support social identity, seek and reinforce social roles, and become involved in social dialogue, thereby having a beneficial effect on the patient's mental condition.

With more intense disorders – such cases having been selected for the present article – written communication breaks down in different aspects and certain problems can no longer be remedied, yet even then writing can be satisfying to some patients. Joint creation of a written text with the therapist involves the patient to the degree in which he is able to function at a given stage of the disease.

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