

History and stories: valorization of the documentary heritage of a former psychiatric hospital

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Abstract— Historical archives of former psychiatric hospitals are valuable cultural heritage that needs to be preserved and valorized through tools that facilitate consultation of their content. They could contribute to understanding the evolution of psychiatric practices, linguistics aspects of the domain’s specialized terminology and societal attitudes towards mental health problems and institutionalized patients. This paper deals with the medical records preserved in the historical archive of the former psychiatric hospital of Girifalco in Calabria, Italy, focusing on its digitization and the creation of support tools for easy consultation. The work highlights the challenges faced with the transcription of handwritten documents. The digitized medical records are valuable research sources and offer insight into the lives and stories of the patients. In particular, the analysis of the terminology used in the medical records revealed linguistic and historical insights. The digitized documents are archived and available online for further research.

Index Terms— cultural heritage, digitization of handwritten documents, Girifalco psychiatric hospital, linguistics, metalanguage and terminology.

I. INTRODUCTION

In today’s digital age, surrounded by a rapid flow of information, preserving cultural heritage has become more important than ever. Digitization projects, tools, and infrastructures are widely supported by national and international initiatives, making it possible to preserve and share cultural heritage with a wider audience.

The historical archives of former psychiatric hospitals are precious sources of information, and various methodological and research approaches have been applied to the historical records they preserve. Their task is to organize memory and make it usable over time [1]. Psychiatric historical archive

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records often contain detailed accounts of patients' experiences, remedies, and the overall historical context of psychiatric care conveyed by the terminology used by doctors in the documents. They can provide insights into the evolution of psychiatric practices, societal attitudes towards mental health, and the experiences of individuals who were institutionalized. As historical psychiatric archives contain sensitive personal information, it is important to pay attention to ethical considerations regarding privacy, data protection, and confidentiality. Proper preservation and access policies must balance the need for historical research with protecting the privacy rights of individuals involved. These kinds of records should always be treated and shared with respect for anonymity, adherence to ethical guidelines and compliance with national and international privacy laws.

The Girifalco psychiatric hospital in Calabria, Italy, was one of the first mental asylums in Southern Italy. It was established in 1878 in this hilly town in the province of Catanzaro because it was considered ideal due to its location and healthiness of the area. Its historical archive holds a wealth of invaluable information regarding the treatment and care of individuals with mental health conditions throughout a century of history.

To ensure the long-term preservation and accessibility of these historical medical records, the Institute of Informatics and Telematics of Rende of the National Research Council (CNR) worked on a digitization project called Alpha. The Alpha project (acronym of eAsy inteLLigent service Platform for Healthy Aging) was carried out between 2014 and 2018 in collaboration with the Regional Center of Neurogenetics of Lamezia Terme (CZ, Italy). Among its objectives was the digitization of the medical records of the former psychiatric hospital of Girifalco (CZ, Italy), aimed at using historical memory to trace forerunner aspects of dementia pathologies and reconstruct, where possible, a hereditary profile of the disease. During the project, over 5,200 medical records

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preserved in the historical archive of the former psychiatric hospital of Girifalco were scanned, covering a period of time between 1881 and 1931. The first 500 of them, referring to years between 1881 and 1894, were also transcribed. Terminological analyses on the digitized clinical records dealt with terms related to remedies and tools, as well as words used by the doctors to describe the patients' speech capacity and autograph documents, especially letters written to family members, attached to the medical record. This analysis aimed to gain deeper insights into the hospital's practices and the prevailing medical knowledge of the time. In addition, the project highlighted the challenges faced when dealing with handwritten documents and their transcription process. The project activities 'opened a window' on the lives and stories of the patients of the mental asylum and still offer many research possibilities.

II. THE HISTORICAL ARCHIVE AND THE PSYCHIATRIC MEDICAL RECORDS

The historical archive of the former psychiatric hospital of Girifalco is housed in the building of the former convent of the Reformed Fathers in Girifalco. This provincial asylum was established in 1878, although the first admissions began in July 1881. The institute housed almost 15,800 patients until its closure in 1978 when the Basaglia Law came into force, reforming these kinds of institutions. The medical records in the historical archive contain the history of each patient, encompassing not only the purely medical aspects but also all the historical and social events that led to their internment. Over the years, the archive has undergone significant alterations and has been the subject of study by various researchers [2], [3], [4] and the authors themselves [5], [6], [6], [8], [9]. These studies have brought to light stories and discoveries relevant to the academic and scientific world, such as the case of the patient Angela R. [10], a 38-year-old Calabrian woman hospitalized in 1904. In her medical record, researchers found symptoms of the Alzheimer's disease described three years before the German psychiatrist and neuropathologist Alzheimer scientifically defined it. The case of Angela R., along with many others, illustrates how the asylum served as a common place of reception for both psychiatric patients and individuals affected by neurodegenerative pathologies, which were not differentiated at that time due to their similar symptomatic manifestations.

In almost a century of activity, the asylum of Girifalco counted 22,415 admissions (14,661 men and 7,754 women). Of these, 17,462 (11,619 men and 5,843 women) were discharged, while 4,448 (2,561 men and 1,887 women) died in the asylum [11]. Each patient admitted to the health institution had a file containing accompanying health documentation, medical records, administrative records, and in some cases, personal writings and correspondence with family members. Generally, these papers are arranged chronologically. Currently, not all medical records can be consulted, as some of them have been lost and others damaged by atmospheric agents or paper parasites before the current arrangement. Additionally, there are four types of registers, respectively organized by municipality of residence, province of residence, entry number, and gender of the patients. The medical records are arranged progressively according to the archival signature shown on the file. This

signature indicates both the absolute total of hospitalizations and the partial total relating to the number of patients hospitalized by gender. For example, '4/2' represents the second woman out of a total of four patients admitted to the psychiatric hospital.

In detail, each medical record - with the necessary exceptions due to lost, damaged, or originally missing documents - is composed of a *title page* which displays the progressive number (both total and partial, distinguished by gender) of the record and includes personal information about the patient, such as name, surname, date and place of birth, and the names of the parents. In some cases, a photo of the patient upon entry is also included. There are usually also: a copy of the *birth certificate*; the *information form* completed by the patient's family doctor, containing socio-economic and clinical information justifying the hospitalization; the *notarial act* formalizing the patient's mental condition, along with documents proving the economic status of the patient or his/her relatives; the *hospitalization order*, issued by the competent political authority; a *descriptive list* of the precious objects and valuables found upon admission; the *nosological table* containing health observations (including medical history, general objective examination with anthropometric measures, and psychiatric examination); the *clinical diary*; various *medical records* and/or documentation of any previous admissions to the same asylum or to other Italian and, in some cases, foreign mental hospitals; the *correspondence* between the asylum management and the mayor of the patient's municipality of residence (including requests for health updates, notifications of imminent discharge, or reports of the death) and the *medical reports* specific to the Girifalco asylum itself (Fig. 1).



Fig. 1. Examples of documents in a medical record of the historical archive of Girifalco: the title page, the information form and the nosological table.

III. DIGITIZATION, TRANSCRIPTION AND TOOLS

The digitization and transcription workflow defined in the Alpha project were tailored to the specific needs of the archive and aligned with the research aims to be achieved through the analysis of the terminology. Furthermore, to facilitate access for authorized scholars and enable the valorization of this cultural heritage, digital archiving and indexing tools with related query masks have been created.

A. The digitization phase

Considering that the delicate and valuable documents of Girifalco cannot be moved from the site of the historical archive because they are under special protection as archive of cultural and historical interest, we obtained the necessary permits from the competent Superintendency. Subsequently, we decided to use two specialized portable scanners, namely the Fujitsu Scansnap V 600 that is an overhead, contactless scanner, with high resolution capabilities. They were used to capture images of the medical records while ensuring minimal damage to the archival materials and without compromising their physical integrity. The scanning of the historical documents took place at the premises of the historical archive of the former psychiatric hospital in Girifalco during the first year of the Alpha project. Through a periodic check of the acquired images we were able to verify compliance with the initial settings in terms of image format and quality. The time required for digitizing each medical record varied depending on the number of papers contained therein. Therefore, it was only possible to provide a rough estimate of the time needed to complete this first phase of the project. Performance improved when the work was parallelized, involving two researchers in the scanning activity.

B. The transcription phase

The current number of digitized medical records stands at 5,258 out of a total of more than 15,000 in the archive, covering the years from 1881 to 1931. When the number of digitized medical records became consistent (approximately in the middle of the first year of the project) we started the subsequent project phase, which dealt with the transcription, to make their content machine-readable. We explored various text recognition techniques because the Girifalco archive contains documents with different handwriting styles, specific domain language and different conditions of the paper, making the transcription process particularly challenging. We initially employed an Optical Character Recognition (OCR) software and trained a Handwritten Text Recognition (HTR) tool to automate the transcription process and then a text recognition software for converting scanned images into editable texts. However, due to the variability of handwriting styles and the degraded state of the documents, the accuracy of automatic transcription technology was deemed unsuitable for the purpose. Human intervention and verification remained essential to optimize transcription precision and quality. Consequently, we turned to the voice dictation software Dragon v. 12. This task was performed by a physician specialized in degenerative diseases, ensuring the necessary expertise in deciphering the clinical content of the medical records and not just the handwriting. The first 550 medical records were transcribed out of the total of those digitized. The set of transcribed medical records constituted the machine-readable corpus available for conducting initial studies on the papers, primarily focusing on the analysis of the terminology within this specialized domain. These first folders are also the richest in details, both in the clinical diary and in the attached documents. Over the years, the folders exhibit a decrease in medical information, and accompanying documentation becomes infrequent. Differences in the filling of medical records can also be observed between the files of poor patients,

which are not very detailed, especially regarding the medical history, and those of patients belonging to wealthy classes. In the latter, in addition to detailed accounts of the events leading to the person's admission to the asylum, there is often correspondence between the patient and the family or between the family and the asylum management.

C. The access tools

The captured images have been archived using a photographic database software, which currently contains over 136,000 images and 5,500 files. Images are stored in .raw, .jpeg and .pdf formats. This tool facilitates images consultation, as folders are organized according to expandable hierarchical branches. Access is strictly protected through two-factor authentication, and credentials are subject to authorization from the competent Ministry.

Furthermore, we developed a web database named Alpha to better manage the vast number of documents and information acquired. We designated personal and clinical data of the patients as indexing and retrieval metadata for the medical records (Fig. 2). Some of these data were further categorized with a set of predefined responses that can be chosen from a drop-down menu (e.g. the indication of the economic class of the patient), while others were intentionally left more descriptive. The intention was to create subgroups of medical records through a pre-coordinated classification to guide the research process. Among the demographic data, the names of the patient's parents and spouse – if present – are also registered along with indications of possible disease inheritance and any relatives of the patient ever admitted to Girifalco (if applicable, their medical records were linked) or to other asylums. These metadata could be combined to provide an initial overview of the data, allowing researchers to select those of interest for further exploration by directly examining the medical records themselves. We did not require the use of clinical standard terminologies for either free texts or in the definition of predetermined values, as they could have been anachronistic compared to the time of the medical records being analyzed.

Istruzione	Professione
<input type="text"/>	<input type="text"/>
Età esordio	Etiologia
<input type="text"/>	<input type="text"/>
Esito malattia	<input type="text"/>
Disturbi comportamentali	
Categorie	
Depressione	
Apatia	
Ansia	
Anaffettività??	
Disturbi cognitivi	
Categorie	
Disorientamento	
Disturbi di memoria	
Disturbi attentivi	
Disturbi di linguaggio e scrittura: afasia, riduzione iniziativa verbale, disgrafia	

Fig. 2. Screenshot of the mask of the web database Alpha, with both free text and predefined clinical metadata.

Moreover, since the Italian Minister of Culture manages a project named *Carte da Legare*, which aims to propose an organic vision and collect data for the long-term preservation of the archival heritage of Italian former psychiatric hospitals, we transferred the data from the indexed medical records into it. This involved conducting a careful mapping between the indexing metadata of Alpha and those of the *Carte da Legare* project. On the dedicated section of the Minister of Culture's website, there are also available data from the census of the archives of the Italian former psychiatric hospitals, some research tools, and statistics on social and health data obtained from the medical records. However, accessing more specific data and each medical record in detail requires proper authorization from the competent authorities in compliance with Italian privacy legislation.

IV. LINGUISTIC ANALYSIS OF THE MEDICAL RECORDS

Historical archives of the former psychiatric hospitals are invaluable repositories of information conveyed through terms and concepts. Their diachronic study can unveil fascinating linguistic aspects. Marcello notes: «the continuous evolution of psychiatric language in step with the rhythm of the cultures of the time, has handed down to the current lexicon technical terms which in current discourse have homologous meanings, even if substantially differentiated on an etymological level and clinical significance» [11]. While keeping almost unchanged its denotative meaning, in a purely clinical context, this lexicon therefore shows renewed and specialized semantic uses. For this reason, the studies that the authors have conducted so far on the papers have primarily focused on linguistic analysis. Nonetheless, involved in a line of studies transversal to various Italian mental hospitals, a historical and sociological analysis of the presence of minors in the Girifalco mental hospital was also carried out and it is presented in the following paragraphs.

A. Tools and remedies

One of the first terminological analyses concerned the tools and remedies used at the end of the nineteenth century for treating mental pathologies. They were often diverse and imaginative, sometimes extreme or deliberately experimental with patients serving as a kind of guinea pigs. In the medical records, their dubious or ineffective outcomes are sometimes reported, such as «ma senza vantaggio alcuno», «senza però ottenere vantaggio di sorta», «con poco giovamento», «a nulla giovarono», «senza alcun effetto» (in English *but without any advantage, without however obtaining any advantage, with little benefit, they were of no benefit, without any effect*). In some cases, after a treatment, we read «dopo di allora rimase balzubiente e come ebete», «la paziente poi si abituò al rimedio il quale riusciva inefficace» (in English *after that she remained stuttering and like an idiot, the patient then got used to the remedy which she found to be ineffective*). These expressions are evidence of a medical practice that often relied on trial and error or employed remedies commonly known at the time, presumed to have some effect, for a multitude of pathologies, often not homogeneous. Terms such as *doccia fredda, cura elettrica, camicia di forza* (in English *cold shower, electric cure, straitjacket*) have become entrenched in the collective imagination over time, often associated with the world of asylums. Within psychiatric facilities, treatments were often

prescribed using what was colloquially referred to as the 'culinary method': «a pinch of this, a drop of that, a small dose of antimony tartrate, camphor, henbane, morphine, cooling head lotions, blisters on the back of the neck, but in moderation, a little Indian hemp» [12].

From the transcriptions of the first 550 digitized medical records, we created a corpus for textual analyses. The corpus was analyzed using software such as Simple Concordance 4.09, AntConc, and T-Lab. Additionally, we generated a word list containing all the terms from the transcribed medical records. From a statistical standpoint, the corpus consists of 17,098 types and 328,692 tokens. Based on this, we constructed a corpus focusing on the terminology designating tools and remedies used in the management of patients admitted to the asylum of Girifalco. It represents a valuable set for further investigations from various perspectives. Not only does it enable historical and sociological studies of the medical terminology of the period considered [6], but it also facilitates the tracing of the history of the terminology itself through the examination of individual entries extracted from the vocabulary and recurring in the corpus. This enriches the already known attestations with the peculiar uses found in the medical records (e.g., *shock/elettroshock, sanguisuga/mignatta, morfina, camicia/busto di forza, vescica/borsa di ghiaccio*. In English *shock/electroshock, leech, morphine, straitjacket, ice bag*) [5],[8]. Among the instruments used in psychiatric practice, there was the electrical stimulation device, a precursor of the electroshock machine which was invented only in the 1930s. However, no detailed description or photographic evidence of it has been found in the Girifalco's archive. It is mentioned in the medical records when referring to the electrical treatment or electric current to which the patients were subjected: «Agosto 1891. Si è sospesa la cura del vescicante dietro reiterate preghiere del paziente il quale promise di parlare. Si fa invece la cura elettrica e si continua il bagno. L'ammalato è molto più sveglio: risponde coerentemente a tutte le domande» (in English *August 1891. The treatment of the vesicant was suspended following repeated requests from the patient who promised to speak. Instead, the electrical treatment is done and the bath continues. The patient is much more alert: he answers all the questions coherently*) (medical record n. 375); «Ottobre 1891. Fu curata con morfina e con la corrente elettrica e l'idroterapia. Da qualche giorno è calma e fa qualche lavoretto» (in English *October 1891. She was treated with morphine and with electric current and hydrotherapy. For a few days she has been calm and has been doing some chores*) (medical record n. 380); «15 dicembre 1893. Notasi emiplegia sinistra. Fa la cura elettrica ma senza vantaggio. La parola è molto imbarazzata: certe volte borbotta da sola senza che si possa capire una parola» (in English *December 15, 1893. Left hemiplegia noted. She does the electric treatment but without advantage. Speech is very awkward: sometimes she mumbles to herself without us being able to understand a word*) (medical record n. 501).

Among the means of restraint, *straitjacket* has 150 occurrences in the medical records analyzed, proving that it was frequently used to calm the nervous attacks of restless and/or aggressive patients by reducing them to immobility. Invented in 1770 in France by an upholsterer named Guilleret, who made it for the Bicêtre hospital, the straitjacket restrains the movements of the arms by forcing them into a crossed position

on the chest and is secured by strong straps on the back. We read in the Girifalco's medical records: «Qui si fece pure irruento, si dovette assicurare con la camicia di forza. Ha tendenze impulsive pericolose. Ha idee di grandezza e si crede ricco e futuro Papa» (in English *Here he also became impetuous, he had to secure himself with a straitjacket. He has dangerous impulsive tendencies. He has ideas of greatness and believes he is rich and the future Pope*) (medical record n. 535); «I periodi di agitazione però, quantunque violenti, sono di breve durata: sono più duraturi periodi di depressione. Nei primi rompe, fracassa, grida, si deve tenere assicurata con la camicia di forza» (in English *Periods of agitation, however, although violent, are short-lived: periods of depression are more long-lasting. In the first few she breaks, smashes, screams, she has to keep herself secured with a straitjacket*) (medical record n. 22); «Nel principio fu trattenuto al letto circa tre mesi fissato a letto con la camicia di forza» (in English *In the beginning he was kept in bed for about three months confined to bed in a straitjacket*) (medical record n. 42). The *force bust*, which had a similar function, has 16 occurrences: «Assicurato spesso col busto, quando non può altrimenti offendere cerca di sputare» (in English *Often secured with the bust, when he cannot otherwise offend he tries to spit*) (medical record n. 144); «In preda a queste allucinazioni è minaccioso, e se non fosse trattenuto col busto di forza potrebbe dare in gravi escandescenze» (in English *In the grip of these hallucinations he is threatening, and if he were not restrained by force he could throw a serious tantrum*) (medical record n. 144). Among the instruments mentioned in medical records and used to evaluate the conscious sensitivity of patients there are the Weber compass, also generically called compass or aesthesiometer, the needle or pin and the dynamometer. Except for the latter, which is an instrument for measuring and studying the strength of a muscle or joint, these instruments are designed to measure the degree of skin sensitivity, in particular tactile and pain sensitivity.

Among the therapies used for the treatment of hospitalized patients, a distinction must be made between those involving the use of pharmaceutical preparations and those attempting to recover the patient's deviant mind through other means. The remedies used for treating mental pathologies, as well as the physical ones that often accompanied them, primarily consisted of natural compounds, extracts of herbs and medicinal plants, preparations, infusions, decoctions and occasionally drugs and poisons. For example, cinchona was used for intermittent fever: «[...] fu colto da febbri intermittenenti. Gli furono somministrati decotti di china» (in English *[...] he was struck by intermittent fevers. He was given decoctions of cinchona*) (medical record n. 202). A variety of drugs and poisons were utilized with the dual purpose of reinvigorating patients and suppressing their excesses: «Stamane si comincia a curarlo con essenza di assenzio (cinque gocce). Nella giornata discese dal letto (cosa non fatta mai) e fu un po' più sveglio. Le dosi grandi di generoso Marsala date nei giorni scorsi furono efficaci» (in English *This morning we begin to treat him with absinthe essence (five drops). During the day he got out of bed (something he never did) and was a little more awake. The large doses of generous Marsala given in recent days were effective*) (medical record n. 306). Among the sedatives, potassium bromide and chloral hydrate have numerous occurrences in

Girifalco's medical records (*bromide* or *bromides* occurs 131 times, *chloral hydrate* or *chloral* 31 times). In particular, at the end of the nineteenth century, chloral hydrate was a new invention against insomnia, the use of which was therefore often abused without considering that this molecule taken in high doses is highly toxic and, in addition to causing strong dependence, in the worst cases of intoxication it can lead to coma and death.

Common in the medicine of the time was the use of leeches for the treatment of vein diseases and other similar pathologies due to the anticoagulant, anti-inflammatory and spasmolytic properties of the hirudin injected by the leech: «Per molti anni soffriva da quando in quando dolore acutissimo alla regione lombare e sacrale che lo confinava a letto per circa un mese e si giovava dell'applicazione delle mignatte al podice ed iniezioni locali» (in English *For many years he suffered from occasionally very acute pain in the lumbar and sacral region which confined him to bed for about a month and he benefited from the application of leeches to the toe and local injections*) (medical record n. 97).

Considering the terminological uses, the corpus also allows to focus on interesting historical and social aspects linked to the hospitalization: for example, the beneficial effects induced by an adequate nutrition are often cited in the medical records, like other remedies for the treatment of pathologies. This was a clear sign of the widespread malnutrition of the time, especially widespread in the poorer social classes.

It is important to mention a treatment practice that was not common at the time, but which would have widespread impact in psychiatric treatments in the years to come. Girifalco is in fact counted among the mental hospitals which practiced ergotherapy in an avant-garde manner. The practice of treating patients through work activity, also called occupational therapy, aimed to restore the insane's social dignity and bring him/her back «to that order of ideas and to that life from which he/she has moved away» [13]. It also guaranteed the self-sustainability of the asylum, which could count on a series of workshops, a vegetable garden, tailor's and laundry laboratories. This was rightly considered as the forerunner of modern rehabilitation. In the medical records there are a lot of examples of these activities. The following extracts report some of them: «ha chiesto di aiutare le infermiere nel lavoro e adempie molto bene al suo dovere» (in English *he asked to help the nurses in their work and he does his duty very well*) (medical record n. 147); «lavora assiduamente ai telai» (in English *he works assiduously on the looms*) (medical record n. 338).

B. Logonyms

Our interest was then focused on the lexical study of logonyms or the so-called «words for words» (metalanguage) [14], extracted from the abovementioned first 550 transcribed medical records. To this aim, the *Language and writing* and *Expressive attitudes* sections (Fig. 3) of the medical records were analyzed to extract the terminology related to patients' speech abilities. These sections are smaller in size than others and, maybe for this reason, they are usually compiled with a rather standardized language. There is, for example, a high recurrence of the same lemmas which, however, present a wide and interesting adjectivation. Also the caption under the section title (*Alterations of the ideal formal and motor element of*

spoken and written language. Alterations of the voice: timbre, pitch) gives precise indications of the elements placed under observation. We analyzed these elements inherent to language to identify forms, locations and contents, in relation to the personal, cultural and social information about the patient. Furthermore, the *Anamnesis* and the *Diary* sections, which are more narrative parts, were analyzed to find notes of the doctors about the patients' language, its particular attitude or explicit manifestations also in relation to the disease.

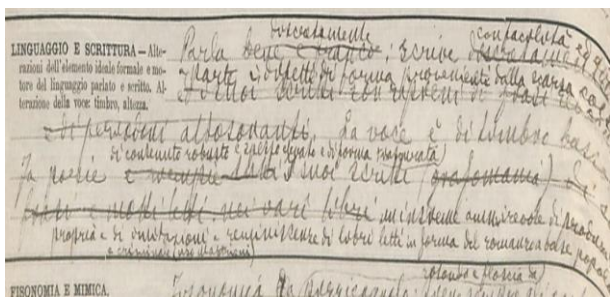


Fig. 3. Language and writing section of the medical record n. 310, richly compiled by the doctor with notes regarding the patient's ability.

The analysis was divided into two phases: in the first, the content of the *Language and writing* sections of the medical records was extracted and inserted into the patient register together with other personal, social, cultural and clinical information; in the second, the textual transcriptions of the medical records were converted into .txt format and processed using T-LAB, a software for concordance analysis and text mining, in order to evaluate the context of use of the terminology relating to the speech ability and its correlation with particular facts or aspects of the pathology. Considering personal and socio-cultural data (e.g., sex, education, class and profession), it was possible to make some observations on the correlation between sociolinguistic data and language disorders.

We used T-LAB to analyze some categories of *verba dicendi*, according to the classification proposed by De Mauro [15]:

- I. «verbs of sayings and other symbolic, communicative and semiotic activities» (e.g., to communicate, to express, to externalize, to signal, to signify, etc.);
- II. «generally linguistic verbs» (e.g., to say, to speak, etc.);
- III. «distinctive verbs of phonetic ways of speaking» (e.g., to whisper, to shout, to murmur, to blow, to scream, etc.);
- IV. «distinctive verbs of semantic-textual modes of speaking» (e.g., to affirm, to chatter, to call, to confirm, to dialogue, to discuss, to emphasize, etc.);
- V. «distinctive verbs of illocutionary and legal modalities and consequences of saying» (e.g., to denounce, to insult, to threaten, to complain, to promise, etc.);
- VI. «*verba scribendi*» (e.g., to note down, to write, to scribble);
- VII. «hermeneutic verbs» (e.g., to decode, to interpret, to read, to spell, to transcribe, etc.).

Particular attention was paid to a) their occurrence in the texts of the medical records, in order to analyze how their use and concordances are declined, also in relation to the psychological, social and cultural characteristics of the insane person; b) the

lexical material accompanied by the lemma analyzed (reformulation, adjectivation or syntagm in the case in which the lemma is a verb), as an element denoting the capabilities associated with the language and at the same time connotative of the peculiarity of the communicative act actually carried out.

The mode of interaction between doctor and patient, and in particular the response expected from the patient, leads in most cases to privilege, in the description of the patients' speech, some categories of *verba dicendi*, such as the second the fourth with little differentiation in their respective uses. For example, verbs such as *to discourse* and *to respond* (IV) and *to speak* (II) in the corpus of the medical use of the forms of 'say' indifferently connote above all the patient's interest and commitment towards verbal interaction and, more generally, the degree of his/her collaboration. In this case, in fact, the co-occurrences of the verbs are largely made up of phrases or adverbs relating to the forms of intensity from the point of view of the variation of the propositional content on the quantity and quality axis [16], such as: *a stento, di rado, poco/pochissimo* oppure *bene, discretamente, coerentemente, adeguatamente* o ancora *lascivamente, con disprezzo*, etc. (in English *with difficulty, rarely, little/very little or well, discreetly, coherently, adequately or even lasciviously, with contempt*, etc.).

Verbs of the third category, which mainly connote the typology of the articulatory gesture, not rarely represent also the obscurity and incoherence of speech of patients, with reference therefore not only to the forms of the signifier but also to the meaning conveyed. In fact, they are accompanied by expressions such as *parole incomprensibili* o *sconnesse, idee deliranti, suoni male articolati*, etc. (in English *incomprehensible or disconnected words, delusional ideas, poorly articulated sounds*, etc.). Some forms of annotation are syntactically elliptical and iconically return the most restless and disturbed 'sounds' of mental hospital: *grida [e] bestemmia, grida [e] minaccia, grida [e] schiamazza, grida [e] urla, grida [e] piange, grida [e] canta*, etc. (in English *he/she shouts [and] blasphemes, shouts [and] threats, shouts [and] screeches, shouts [and] screams, shouts [and] cries, shouts [and] sings*, etc.) up to the most dissonant forms of annotation such as the following: «frequenti eruttazioni che accompagna gridando con cadenza musicale» (in English «frequent belching accompanied by shouting with a musical cadence»).

Particularly interesting are some verbs of the IV category such as *nominare* and *domandare/chiedere* (in English *nominate* and *question/ask*): the first as the terms it accompanies are especially explanatory of the psychic suffering of patients who, very often, nominate God, the saints, the family, the wife, the brother, the children, etc. ; the latter as they bring to light the desires, which are also expression of the painful desperation within the walls of mental hospitals. The patients ask, in fact, *lavorare/faticare, essere curato, essere sciolto/liberato* (in English *to work/toil, to be treated, to be released/freed*) (from the straitjacket), *che lo si lasci andare a casa/tornare in famiglia, di essere cacciato fuori* (in English *to be allowed to go home/return to the family, to be kicked out*) (from the psychiatric hospital), *di uscire, di essere licenziato* (in English *to go out, to be discharged*) or ask for *la grazia/giustizia, il foglio di via, medicine, purganti, cibo/un tozzo di pane, tabacco/un mozzicone di sigaro/una cicca, carta da scrivere, notizie* (in English *pardon/justice, dismissal,*

medicines, purgatives, food/a piece of bread, tobacco/a cigar butt/a butt, writing paper, news).

Fig. 4 shows an example of the concordances of the term *eloquio* (speech in English), almost always referred to male patients, with the related adjectives or adverbs that connote it: *difficile, facile, normale e molto povero* (in English *difficult, easy, normal and very little*), as well as evidence of the context of use.



Fig. 4. Concordances of the term 'eloquio' (analysis obtained with AntConc 3.5.9 software).

Furthermore, the co-occurrences of the lemma *parola* (word in English) (Fig. 5) are interesting, and in particular in its inflected plural form of *parole* (words in English), which on the one hand co-occurs with multiple *verba dicendi* (with particular incidence of the distinctive verbs of the phonetic modalities of 'saying', such as shouting, whispering, etc.), on the other with terms descriptive of the state of agitation of the place or connected to the 'disorder' caused by the pathology that was the reason for imprisonment (obscene, indecent, shouting, erotic, blasphemy).

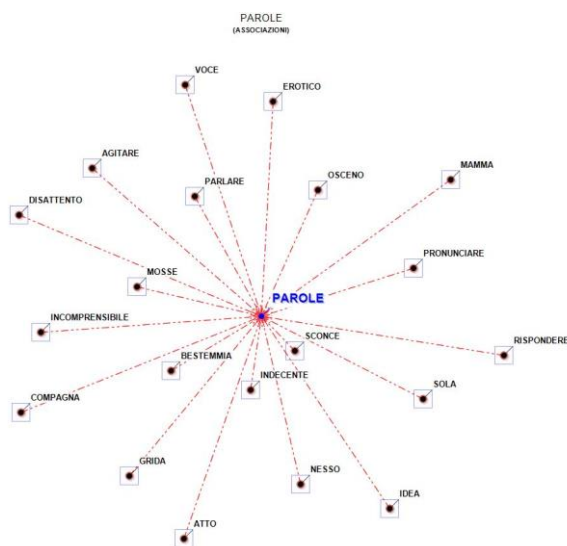


Fig. 5. Graph of the associations of the lemma 'parola' produced by TLAB.

The lemma *idea* is often associated with the lemma *word*, evidence that the course of thoughts and the ability to express them were the main points of attention for the medical analysis of the cognitive abilities of the insane person. The lemma *word*

sometimes also introduces the reported speech, in which the word *mamma* (in English *mum*) has a particular incidence. Finally, the frequencies of the lemmas *word* (257 occurrences) and *idea* (839 occurrences) highlight clearly that they were focus of attention of the medical analysis for the evaluation of the cognitive abilities of the patient through the course of thoughts and the ability to express them.

Among the aspects of sociolinguistic interest, it should be noted the co-occurrence of the *verba scribendi* (VI class) with terms such as *giornale/i, libro/i, poesia/e* (in English *newspaper/s, book/s, poetry/s*), useful for deepening the link between gender, profession, social class and economic condition of patients who used to devote themselves to reading and writing. The entries relating to writing appear to be used for over 90% by men, whose profession implies a certain education, and of medium-high social class, even if there are some exceptions, such as M.B., a poor housewife who writes poetry, and G.L., a bricklayer who usually reads the newspaper. Also noteworthy is the linguistic deference used towards the more well-off patients as in the case of M.P., hospitalized twice and on his second hospitalization already a graduate and a notary by profession. In the diary of the second hospitalization, which took place in 1910, 23 years after the first one, it is reported: «Riammesso per la seconda volta. Loquace sbraita contro tutti i suoi compaesani e specialmente contro la moglie e la di lei famiglia per il provvedimento preso contro di lui. Super-uomo, ha dei sensi di compatimento verso tutti gli altri uomini del mondo [...] a pochissimi eguale! [...] Megalomane iperbolico, loquace [...] trova da ridire su tutto e su tutti. È però innocuo e frivolo» (in English *Talkative, he rants against all his fellows and especially against his wife and her family for the measure taken against him. Super-man, he has feelings of compassion towards all other men in the world [...] very few equal him! [...] Hyperbolic megalomaniac, talkative [...] finds fault with everything and everyone. However, he is harmless and frivolous*) (medical record n. 208).

This terminology is often not yet standardized in scientific use and therefore often impressionistic ('warm' terminology according to the definition of [17] and [18]) but, precisely for this reason, even more interesting, also for the purposes of the collocations that the data mining can return. For example, the analysis evidenced that adjectives that accompany the terms are rich and varied and give rise to descriptions which, also using brief narratives of attitudes, paint the language and writing skills of the patients. They are more or less developed according to the level of education and social class of the patient, with due exceptions, and are directly influenced by the diagnosed pathology. For example, someone with 'melancholic stupor' does not speak at all, while the word 'incoherent' is characteristic of a diagnosis of paranoid dementia. Some significant examples follow: «Ha una logorrea meravigliosa, con le sue ciarle introna le orecchie e riesce noiosa. È un'esposita e analfabeta» (in English *She has a wonderful talkativeness, with her chattering it plugs the ears and becomes boring. She is an abandoned orphan and illiterate*) (medical record n. 71, 53 years old, spinner); «Parla facilmente con parole appropriate e rapidamente trovate. molta loquacità. la parola esce facile, senza alterazioni di natura motrice. scrive incoerentemente con l'espressione delle idee deliranti e dei sentimenti mutati con errori grafici di natura analoga allo stato

di eccitazione cerebrale. la voce è naturale, nasale, da prete alquanto, forte, che non si stanca» (in English *He speaks easily with appropriate and quickly found words [...] a lot of talkativeness [...] the word comes out easy, without alterations of a motor nature [...] he writes incoherently with the expression of delusional ideas and mutated feelings with graphical errors of a nature analogous to the state of cerebral excitement [...] the voice is natural, nasal, quite like a priest, strong, which does not get tired*) (medical record n. 100, 50 years old, priest); «la parola è inceppata, anzi strisciante. Talvolta le parole sono biascicate» (in English *the word is jammed, indeed creeping. Sometimes the words are slurred*) (medical record n. 63, 34 years old, tailor).

From the descriptions of the patients' speech, and in particular from the metalanguage and the *verba dicendi* used in the medical records, the image of an obscure, ambiguous, shouted or whispered language emerges, often even denied, certainly different from the norm. Yet, if a norm also underlies the pathology, then this analysis of the lexicon relating to the *verba dicendi* of the corpus already constitutes a precise, analytically explorable confirmation of the paradoxical norm to which the psychic pathology that affects language responds. It rests in the 'non-operability', up to the actual violation, of the rules in which the *cooperative principle* is specified in Grice's theory of conversation [20]. In the clinical and psychotherapeutic field, in fact, the maxim relating to the quantity of information ('make your contribution as informative as is required') to be provided is not considered possible, indeed the omissions, avoided topics, denials are an integral part of the patients' production [21]. Likewise, in the same "control and therapy" contexts [16] not even the third (*Relation*) and fourth (*Manner*) maxims are operational, since what is valued is above all the free association between contents and the not early resolution of ambiguous communications [21], [22].

C. Hospitalized minors

Afterwards, involved in a line of studies launched on various former asylums in Italy, the digitized medical records were analyzed focusing on hospitalized minors (47 minors out of 550 patients hospitalized in the period from 1881 to 1894). In particular, we studied the events that led them to hospitalization, the reactions of minors and the instrumental use of the asylum institution by families. Results show that within this category illness and sickness are the result of social rather than clinical circumstances. Children and youths were often considered adults, in fact, even if the youngest hospitalized minor is 10 years old, the average age of minors is 19 years old, which is an age commonly considered adult from the social conventions of the time and within the context in which the asylum of Girifalco is located. It is evident from the examination of the documentation that the minor age was not seen by psychiatrists as a condition such as to "guarantee" them greater protection. In fact, their medical records, as well as the treatments given to them, are in no way different from those of all other patients. Nonetheless, results show that the period spent in the asylum was beneficial as, considering the population of minors investigated in this work, the percentage of deaths is around 34% while discharged are 66%, and of these the 78%, that is 25 out of 32 minors, came out cured or improved, while the rest was discharged on trial or at the behest

of family members. From the analysis of the subgroup of medical records referring to minors, it emerges that the most frequently codified pathology was *epilepsy* [19], in relation to the positivism that pervaded psychiatry at the end of the 19th century which, with the bioanthropological theory of primitiveness and the biopathological theory of degeneration [23], affirmed the existence of a connection between ethnicity and mental illness. Director Pellegrini put the high number of epileptics in close correlation with «the blood crime of this Province» [24], in the wake of Lombrosian theories of the "born delinquent" and tracing the causes in «many centuries of consanguineous marriage customs, or sexual choices guided not by biological tendencies, but by criteria of caste, or interest, or prejudices» [24].

The most frequently codified diagnosis in the medical records of minors is *epileptic phrenosis* (12 occurrences). Together with *hebephrenia* (9 occurrences), *hebephrenic dementia* (2 occurrences), *sensory phrenosis* (2 occurrences), *phrasthenia* (1 occurrence), *criminal phrenosis* (1 occurrence) and *puerperal phrenosis* (1 occurrence), testifies that Guislain's theories found wide acceptance among alienists of the late 19th century. They put in contrast the roots *fren* and *psycho*; referring the first to intelligence and ability to reason, while the second to all human feelings, and also recalling a theological component. It is a period full of fervor for the felt need to classify mental illnesses in a uniform way [25].

It is interesting to report some analyzed cases of the minors. A., 18 years old (medical record n. 125). She entered the asylum «sapendo che era in manicomio e per guarirsi» (in English *knowing she was in the asylum and to heal herself*). The awareness of the disease, and above all the will to cure it, are not frequently reported in the medical records. She is described as a very fickle and talkative patient, so it is to be assessed to what extent these statements are part of her delusions. She wrote one of the rare testimonies present in the archive of texts handwritten by the patient (Fig. 6). In fact, in her medical record there are two notes in the form of a letter. The writing is confused and sometimes the lines overlap making it difficult to decipher what is written.

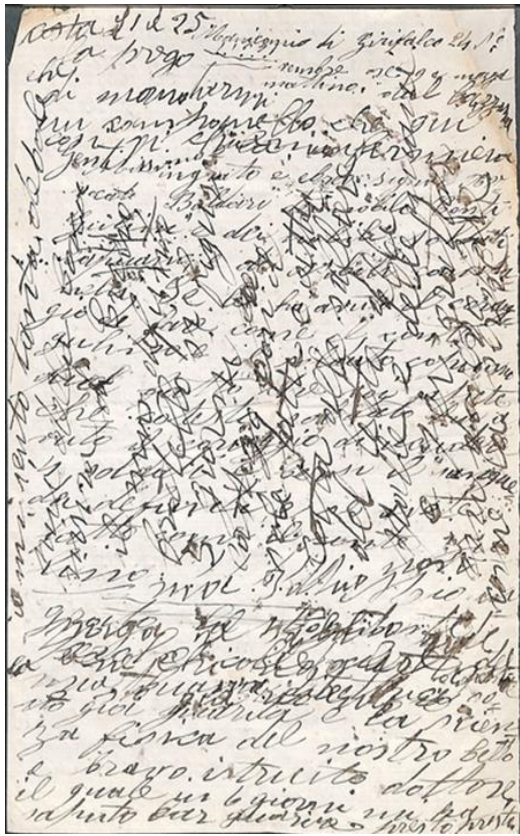


Fig. 6. Extract of one of the handwritten notes by the patient A.

S., 10 years old (medical record n. 19), the youngest hospitalized in the considered period, is an example of how at the time the concept of deviance included not only a deviation of the mental faculties for psychic, but also neurological and genetic reasons, as well as a deviation of the moral faculties and a decline in social conduct [26]. Thus, the asylums were full of patients suffering from mental retardation of genetic origin or neurodegenerative diseases, criminals, adulteresses, prostitutes, and abandoned or repudiated children. The child S. presented all the characteristics of a neurological disorder, in fact before entering the asylum «non ebbe mai favella. Dice il padre che di tanto in tanto soffre di convulsioni epilettiformi» (in English *she never spoke. Her father says she occasionally suffers from epileptiform seizures*). In the asylum «talvolta è ipnotizzata. Talvolta lacera e offende le compagne, getta sassi contro di loro con una precisione che fa meraviglia. Non parla perché è impedito il linguaggio, emette suoni inarticolati» (in English *she is sometimes hypnotized. She sometimes tears and offends her companions, she throws stones at them with astounding precision. She doesn't speak because speech is impeded, she emits inarticulate sounds*).

In the case of V., 12 years old (medical record n. 333), a farmer of poor economic condition is interesting to note the attitude of the Director Venturi towards the disease. V. entered the asylum with the diagnosis of epileptic constitution, but after 4 months the family insisted on having him back assuming all responsibility. Director Venturi wrote: «fu dimesso non perché guarito o migliorato ma perché appartenente a quella categoria di malati, epilettici, che propriamente non dovrebbero stare nei manicomi» (in English *he was discharged not because he was*

cured or improved but because he belonged to that category of patients, epileptics, who really shouldn't be in asylums), thus showing a sensitivity in wanting to give their own dignity not only to epilepsy as a neurological disorder, but also to the asylum, as an institution responsible for treating a completely different type of pathologies. Similarly, among minors there were also young women suffering from what today we would call postpartum depression. As other non-psychiatric pathologies relegated to asylums for years, this disease struggled to obtain its own social rather than clinical recognition, legitimizing it in the eyes of the husband, the family, but above all the woman herself.

The result of the analysis is a varied portrait of childhood and youth not considered as they are but as adults. In fact, although the smallest hospitalized minor barely reaches the age of 10, the average age of minors is around 19, which was an age commonly considered adulthood from the social conventions of the time and within the geographical area of the Girifalco mental hospital. The analyzed medical records revealed that being a minor was not seen by psychiatrists as a condition that would guarantee them greater protection. In fact, their medical records, as well as the treatments provided, do not differ in any way from those of all other patients.

Finally, it is interesting to note that in the years under investigation the general percentage of deaths recorded in the asylum of Girifalco was 6% lower than that of other Italian asylums which stood at around 20%. These numbers led Professor Silvio Venturi, one of the most illustrious directors of the psychiatric hospital of Girifalco, to write in his report on the trend of the asylum situation during the period of his management: «the sentence that is on Dante's Inferno is not suitable to our asylum, but I hope public opinion agreed with me to write: *sanus egredieris*».

V. CONCLUSION AND FUTURE PERSPECTIVES

Historical psychiatric archives are significant cultural heritage, as they hold valuable insights into the understanding and study of mental health problems, the evolution of psychiatric care, and the experiences of individuals with mental illness throughout a century of history. Ensuring the long-term preservation of these archives is of utmost importance because they provide a window into the past, offering valuable historical evidence about the development of psychiatric theories, treatments, and societal attitudes toward mental health conditions.

This work aimed to describe the experience of recovery, digitization, preservation, and study of part of the historical archive of the former asylum in Girifalco. The results of the studies conducted so far demonstrate the wealth of information contained in those medical records. Therefore, in the future the authors intend to complete the digitization of the medical records and their transcription and apply more NLP (Natural Language Processing) tools to the texts.

Furthermore, the challenges of preserving handwritten documents and transcribing them accurately have required, and still require, the collaboration of experts and the use of advanced technologies. In a future work the historical archive records of Girifalco could be used as training data to teach a deep learning model about the language, in particular lexicon co-occurrences, terminology, and historical context related to

psychiatry. Exposing an AI (Artificial Intelligence) model to such records can make it learn to generate responses that are informed by historical perspectives. However, it is crucial to ensure that AI-generated outputs are scrutinized and validated by human experts to avoid misinterpretations or perpetuation of biases.

Overall, combining historical archive records with AI technologies could potentially enhance research and understanding in the field of psychiatry. However, responsible and ethical practices should be followed to ensure the appropriate handling and usage of these records.

In conclusion, historical psychiatric archives form an integral part of a nation's cultural heritage. They contribute to preserving the collective memory of a society by documenting the lives and experiences of individuals who may have been marginalized or overlooked. By safeguarding and making these records accessible, we can honor the diversity of human experiences and promote a more inclusive understanding of our cultural heritage.

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