

Coprophilia-Faeces Lust in the Forms of Coprophagia, Coprospheres, Scatolia and Plastering in Dementia Patients, Our Thoughts and Experience

Gregory Tsoucalas^{1,2}, Markos Sgantzios^{2,3}, Konstantinos Gatos¹

¹Specialized Hellenic Centre for Alzheimer Disease and Related Syndromes, Neurological clinic "Agios Georgios", Alykes, Volos, Greece

²History of Medicine, Faculty of Medicine, University of Thessaly, Larissa, Greece

³Department of Anatomy, Faculty of Medicine, University of Thessaly, Larissa, Greece

Email address:

gregorytsoucalas@yahoo.gr (G. Tsoucalas), sgantzios@med.uth.gr (M. Sgantzios), aggeo@otenet.gr (K. Gatos)

To cite this article:

Gregory Tsoucalas, Markos Sgantzios, Konstantinos Gatos. Coprophilia-Faeces Lust in the Forms of Coprophagia, Coprospheres, Scatolia and Plastering in Dementia Patients, Our Thoughts and Experience. *International Journal of Psychological and Brain Sciences*. Vol. 1, No. 3, 2016, pp. 45-53. doi: 10.11648/j.ijpbs.20160103.12

Received: October 25, 2016; **Accepted:** November 8, 2016; **Published:** November 29, 2016

Abstract: Coprophilia is a rather often behaviour among the dementia patients. Faeces lust, coprospheres, coprophagia, scatolia, and plastering are the appearance patterns of this kind of peculiar phenomenon. It seems that dementia patients mentally return to a newborn status with simultaneously loss of toilet skills, acquiring primitive primordial basic instincts. Coprophilia in dementia is an unstudied behaviour. Eroticism, narcissism, fetishism, brain atrophy and/or frontotemporal malfunction, and gene mutations are implicated. Our objective is to study this peculiarity in dementia patients. Our scientific interdisciplinary team have selected a group of 37 patients presenting coprophilia during the last 5 years (January 2011 - January 2016), all clinic inmates. Positive practice overcorrection procedure should be instituted, and/or disciplinary enquiry, and/or SSRIs to reduce coprophilic incidents. In our clinic, a percentage between 8% to 12% of patients with mild to moderate dementia exhibited coprophilia, while among the patients with severe dementia the percentage was significantly lower, 1% to 2%. Our experience, when perusing the results of our study on dementia patients, drove us to conclude that specialized bondage during bed time is the only measure to reduce incidents. Among 37 coprophilic patients hospitalized inside the Hellenic Reference Centre for Alzheimer Disease and Related Dementia Syndromes the last five years, we haven't met not even one patients with complete remission besides our external interventions and efforts. There are no available batteries to actually measure behavioural patterns in coprophilia, while scientific data concerning aetiology and confrontation are rather limited due to lack of manuscript publication. We therefore, strongly believe that with the means available (procedures and medication), coprophilia in dementia is an incurable and unstoppable behaviour, and further study to understand and confront it should be administered in the near future.

Keywords: Coprophilia, Coprophagia, Coprospheres, Plastering, Dementia, Specialized Bondage

1. Introduction

The increased life expectancy of people worldwide has increased the number of older adults with dementia, with the WHO's dementia report estimating that there were 7.7 million new cases of dementia each year, equal to one new case every 4 seconds. Behavioural and psychological symptoms of dementia occur in nearly 70% of older adults with dementia, presenting more than 100 types of problematic behaviours, causing considerable inconvenience

and concern among family caregivers and medical staff [1-2]. Among the symptomatology a grotesque symptom scintillate, the lust for faeces in the forms of coprophagia, scavenging, calcinating or conjuring up "spheres" and scatolia, behaviours that are socially unacceptable [3].

Coprophagia, a particular form of pica (allotriophagia) and generally the lust for faeces (coprophilia), appear in patients with diffuse brain damage and in persons with mental retardation (or with intelligence below the average). It also appears during the early childhood, while it is a usual phenomenon among the non human primates. Coprophilia is

a common act in people who are unable to distinguish objects and substances in foods and non-foods, who have a tendency for scavenging among excrements. Dementia patient "returns" gradually in a mental primitive stage like in childhood and eventually in infancy, simulating similar behaviours, even adopting the "fetal" position during the day. Is the deficiency of nutrients, the feeling of hunger, the boredom, the dementia syndromes themselves, the attempt to avoid punishment due to the un-clean status after a faeces accident that lead to the eating and/or smearing of faeces, or simply an "abnormal" psycho-emotional behavioural disorder, an inability to skill for defecation or maybe a restitution to a primordial, primitive, basic instincts, or the complacency-narcissism and/or a sexual deviation and pathological eroticism towards everything that comes from the human body? The answer is surely complex and combinatorial [4-9].

Even if there is no specific aetiology, all these situations having to do with coprophagia or faeces lust, have not received significant attention in the adult psychiatric literature, and mostly present a bizarre subject, usually forbidden for the caregivers and taboo for the medical staff. Our study aims to provide some information on the subject, mainly presenting ours interdisciplinary team experience over the years in the "Hellenic Reference Centre For Alzheimer Diseases and Dementia Related Syndromes". We have tried to compose some ideas about aetiology, while we present some statistics after the application of three different interventions. Positive practice overcorrection procedure, medication and restrains protocol were applied for coprophilic patients to be studied.

2. Primordial, Primitive, Basic Instincts

Among the non-human primates peculiar acts which could demystify the origin of our social and sexual behaviours could be discovered. Most primates, as social animals, need to communicate, as humans do, with conspecifics and individuals of other species in different contexts (agonistic interactions and territorial defence or marking) including above all mating rituals and sexual attitude. Primates by depositing urine and faeces with secretions from sex accessory glands or the anal gland, and by depilating their selves with faeces enable the scent communication (a type of chemical communication), especially when a socio-sexual pattern for coupling needs to be performed [8-10]. Most studies agree that behaviours as the above mentioned are a sign of intelligence, need neurological coordination and are most probably premeditated [11].

Animals have been reported to seek out sodium, calcium, magnesium, and potassium, as well as specific vitamins, and those sought items may be found in natural food sources, mineral licks, or even in the animals' own faeces (Fig. 1) [12]. It has been reported that the ingestion of faeces can serve as a source of some vitamins, aid in the fermentation of other nutrients, and/or assist in the digestion or absorption of the animals' natural diets [13]. Primates practice coprophagia

and/or faecal as a behavioural adaptation that provides animals access to energy and nutrients and may be an important nutritional source for older, and/or dentally impaired individuals during the dry season [14-15].



Figure 1. Coprophagic primate. http://uglyoverload.blogspot.gr/monkey_eating_poop. Accessed 01/06/2015.

Dementia patients have a diminished mental capacity that constantly is being reduced [16] towards a capacity analogue to a newborn's, possibly acquiring all primordial instincts. Furthermore, as nutritional decrease in the amount eaten (oligophagia), together with the loss of weight is probably the most common disturbance in dementia [17], something that could lead in a search for supplementary food sources.

3. Faeces lust in Ancient Greece and the Freudian Narcissistic Theory

In Ancient Greece during the orgies dedicated to the god Dionysus, bizarre erotic fetishes were in constant use. Many depictions of people defecating in clay pots (Fig. 2 & Fig. 3) during an orgy, prove the narcissistic erotic deviation in ancient cultures [18-20]. As dementia causes many changes in people's lives, sexually disinhibited behaviours are quite common [21]. Hypersexuality may result the use of scat as a mean to promote libido. Freudian theory suggest that the

object of desire in not the person of the opposite sex, but something more abject, an object a faeces in this case [22]. Coprophagia serves as an attempt to re-establish a threatened narcissistic equilibrium usually lost in dementia. The loneliness could be compensated by the symbolic re-introjection of the dearly body excrements that have been lost during defecation [23]. Thus dementia patients, could imitate some of those patterns.

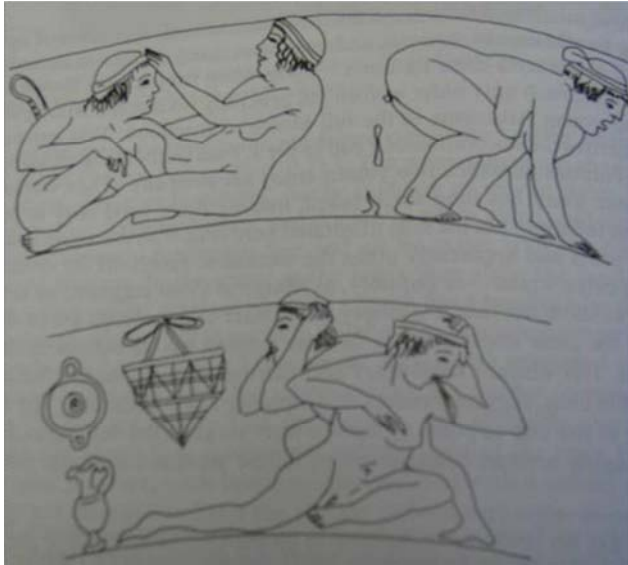


Figure 2. Attic red rhyton with plastic head painted by the painter Bruges (ca. 490-480 BC), today is ignored. In the upper decoration zone a female on the right defecate bent to the ground. Sutton 2000, figure 7.9.



Figure 3. Attic black-figure oinochoe by the painter Kleisofou and potter Xenocles. Athens National Archaeological Museum: A 1045 (ca. 520 BC). Scene depicting revelers with one from which to defecate with intense diarrhoea.

4. Coprospheres

Some non human primates except from eating their faeces, they are also throwing then. Throwing has mostly been recorded in the context of both inter and intraspecies agonistic encounters, although some have described it as a means of initiating play or communication [24-26]. In such a way (non human primates = newborns model) dementia

patients exhibit the same deed by forming a kind of spheres made by their faeces (Fig. 4 & Fig. 5) in order to attract attention, communicate, or punish the caregivers in the case of a misunderstanding [27]. It is peculiar the fact that coprospheres are being encountered more frequently during the last years.



Figure 4. Coprosphere, Hellenic centre for Alzheimer disease and related syndromes-Neurological clinic "Agios Georgios," Alykes, Volos, Greece. Gregory Tsoucalas collection, 2015.



Figure 5. Coprosphere thrown by a dementia terminal stage patient to a distance of 2,5m in the wall, aiming the nurse, Hellenic centre for Alzheimer disease and related syndromes-Neurological clinic "Agios Georgios," Alykes, Volos, Greece. Gregory Tsoucalas collection, 2015

5. Coprophagia

Coprophagia has been observed in psychiatric hospitals among adult patients with diffuse brain disease and in individuals with sub average intelligence. Although it is an uncommon act in the general population (seen only as an escalation of fetish during sex, usually combined with anal erotism), can be met in dementia populations causing patients, families and caregivers to tell tales of behavioural changes that sometimes encroach on the incredible [9, 28].

Coprophagia is usually considered as an obsessive-compulsive disorder, or as a kind of pica. Of all the

maladaptive behaviour of the institutionalized patients, coprophagia is generally regarded by the staff as the most disgusting. The coprophagic patient who digs in his rectum for faeces to eat or eats the faeces of others, receives scant attention from ward staff. He smells bad, is generally quite messy and can be a source of infection and infestation. Frequently, is kept in isolation, or his arm movements are restricted by specialized restraints [29]. Although it is a rather common phenomenon, the epidemiology of coprophagia in persons with dementia is unknown. Health risks of this behaviour are obvious and its effects on the individual's quality of life are also self-evident. Coprophagia is a source of self infection since the scavengers' hands come constantly into frequent contact with his mouth, and the ingestion of faecal matter can cause chronic infestation from intestinal parasites such as whipworms, which are a common finding in their excrements. The practice of coprophagia is also associated with a multitude of serious health problems that place the demented elder at grave risk, including the hepatitis A virus, skin abscesses, airway obstruction, aspiration, and sialadenitis [29-30].

6. Scatolia

Scatolia, the smearing of faeces (osphresiolagnia) or presence of faeces on the hands and/or body (Fig. 6), is another form of faeces lust encountered in dementia patients. Scatolia is among the least understood behaviours [2]. Smearing of faeces can be an act of passive retribution and it is reported that its frequency is higher at night than during the day [31]. Negative affect in patients with dementia might contribute to scatolia. From clinical observations, scatolia often occurs when people suffering from dementia are trying to clean themselves up after a "poop accident", and the faeces get everywhere. The disturbance of circadian rhythm might also contribute to its occurrence [32]. Narcissism, bored dementia patients, lack of toilet skills could also be involved in an attempt to clarify such a troublesome behaviour [2, 31].



Figure 6. Scatolia, Hellenic centre for Alzheimer disease and related syndromes-Neurological clinic "Agios Georgios," Alykes, Volos, Greece. Gregory Tsoucalas collection, 2015.

7. Plasterering (Finger Painting)

In some occasions dementia patients plaster the wall with their faeces, an act known as "finger painting" [31], a behaviour met also in non human primates (Fig. 7). It represents most probably an attempt to maintain their attention towards an artistic satisfaction. It is a form of art therapy or a distress patent for them to use finger painting in order to shape simple models, lines in circular alignment in most cases (Fig. 8). In the absence of markers, faeces for dementia patients could do the trick [33].



Figure 7. Primate Plasterering. <http://wn.com/Coprophilia>. Accessed 01/06/2015.



Figure 8. Plasterering. Hellenic centre for Alzheimer disease and related syndromes-Neurological clinic "Agios Georgios," Alykes, Volos, Greece. Gregory Tsoucalas collection, 2015.

8. Aetiology and Treatment

Eating faeces and/or self daub, are wrongfully proposed to be the result of thiamine deficiency and is suggested by most researchers that it is simply related to a lack of toilet skills for dementia patients. Pancreatic and intestinal enzyme deficiencies and acquired behavioural modalities or primordial instincts are also proposed [3, 11]. Constipation likewise is proposed among the main reasons for scatolia

[32]. Frontotemporal malfunction due to degenerative or vascular lesion could be connected with repulsive behaviours. As of lately three major genetic mutations causing frontotemporal dementia are reported and are now recognised in the microtubule-associated protein tau and the progranulin genes, and repeat expansions in the C9orf72 gene [27, 34]. The behavior may be related to medial temporal lobe atrophy, similar to the Klüver–Bucy syndrome and hyperorality, seizures, steroid psychosis, frontal lobe tumour, schizoaffective disorder, and autism [35–37].

Positive practice overcorrection procedure (hygiene procedures) should be instituted combined with tactile stimulation that should be accomplished as frequently throughout the day as necessary [29]. Interdisciplinary teams and behaviour observers are necessary to design and conduct all psychoneurological interventions (interview, discussion, artificial faeces) [38]. A combination of psychopharmacologic therapy of faeces lust (as a kind of pica) is customarily more effective. Treatment with SSRIs (Selective Serotonin Re-uptake Inhibitors) including fluoxetine, sertraline and escitalopram has been shown to reduce pica's intensity and patients responded rapidly. Their positive effect is attributed to their anti-anxiety and anti-obsessive properties [39–44]. There is reference for treatment of a residence with dementia with the use of laxatives [45]. An elected ingestion of highly-spiced, flavourful foods was also introduced with good results as patients shown good correspondence [30]. Sometimes rather than launch a disciplinary enquiry (cleaning the room) it is decided to activate patients attention and reduce scatolia [46].

It should be emphasized that psychological therapy is only applicable to patients with mild to moderate dementia, while

drug treatment is more suitable for patients with severe dementia (including last stage dementia).

9. Method

The study was conducted in the Hellenic Specialized Centre for Alzheimer Disease and Dementia Related Syndromes in Alykes Volos (central Greece). For a period of 5 years, from January 2011 to January 2016, we have selected the coprophilic dementia patients of our centre to be included in our study (n=37). We have then applied to each and every one 3 external interventions, i) correctional behaviour patterns, ii) SSRIs, and iii) specialized bondage. Every intervention was applied for 1 week to the patients, with an interval of 1 month between the 3 applications. All interventions were always subjected to the law of the Greek state (3418/2005) concerning guidelines and ethics.

10. Results

It is widely mentioned the absence of adequate studies on the matter. In our clinic (Specialized Hellenic Centre for Alzheimer Disease and Related Syndromes) the last quinquennium our team have observed and studied 311 dementia patients (Table 1 & Table 2) presenting behaviour patterns concerning coprophilia in an attempt to share our conclusions. A percentage of 8% up to 12% of patients with mild to moderate dementia exhibited coprophilia, while among the patients with severe dementia the percentage was between 1% to 2% only (maybe because of dyskinetic hurdles and/or brain atrophy). Scatolia is also commonly found in almost all dementia coprophilic patients.

Table 1. Demographic characteristics of the sample. Hellenic centre for Alzheimer disease and related syndromes-Neurological clinic 'Agios Georgios,' Alykes, Volos, Greece.

Sex	Number	Living area			Education			Age Distribution				Blue Collars	White Collars	Business men	House keeping**
		Urban	Rural	Island	No	Middle*	University	50-65	66-70	71-80	80+				
Male	14	4	8	2	2	10	2	0	3	10	1	11	2	1	0
Female	23	9	13	1	7	13	3	2	4	11	6	12	3	0	8
Total	37	13	21	3	9	23	5	2	7	21	7	23	5	1	8

*. Middle education: Elementary, Junior High School, High School.

**. House keeping: It refers only to the exclusive preoccupation, while all female patients under the blue collars category were also responsible for the house keeping.

Table 2. Dementia coprophilic patients the last quinquennium (2011-2015).

Year	New patients per year	Coprophilia	Mild to moderate dementia	Episodes per day 1-5	Episodes per day 6+
2011	114	17	14	10	4
2012	50	5	5	4	1
2013	47	6	5	4	1
2014	81	7	6	5	1
2015 (first 6 months)	19	2	2	2	1
	Total 311	Total 37 (11,89%)	Percentage 8%-12%		

Table 2. Continue.

Severe dementia	Episodes per day 1-5	Episodes per day 6+	Coprospheres	Coprophagia	Scatolia	Plasterering
3	3	0	5	3	15	12
0	0	0	1	0	5	3
1	1	0	2	0	5	2
1	0	1	3	1	6	5
0	0	0	4	0	2	4
Percentage 1%-2%						

On the other side of live, this of the caregivers (medical and nursing staff, family, friends, attendant, volunteers), all experience tremendous barriers in caring and have significant treatment and behavioural obstacles to cope. Thus specialized institutions (residence, clinic, hospital) and interdisciplinary teams are needed to holistic deal with such patients. Always have in mind the interdisciplinary support which is needed by the caregivers who are under constant psychological and social pressure.

Our team strongly believe to the theory of the "return to early childhood" for these patients, with not adequate mental capacity and with no toilet skills and a tendency towards our species primordial instincts and. As far as the recurrence towards coprophilia (Table 3 & Table 4), has only shown diminution, especially the group of the mild to moderate dementia patients, but in no case complete inversion (elimination 0%). Our team decided to perform three external interventions. We have established 1 week protocols for the positive practice overcorrection procedure (eating flavoured

food, puzzle performance) and for the disciplinary enquiry (cleaning the room), while the application of a three month medication protocol with SSRIs was applied, in an attempt to correct coprophilic incidents. As of our last resource, we were forced to apply 1 month specialized bondage protocol during bed time, in most cases to confront with health and quality of live issues. Disciplinary enquiry has no point to be performed in severe dementia patients, none seemed to react to the orders. Bondage proved to be the only effective measure to prevent coprophilic incidents. Even if sometimes a firm bondage imitation is applied, the patient almost always find ways to overcome it in order to ally his lust. Many times patients were found upside down in awkward positions trying to reach their anus or their dirty diapers. We even have a patient that constantly during the night and always under bondage, turns his body in such a position to defecate in his face. Coprophilia seems to be in our opinion an irreversible behaviour for the dementia patients.

Table 3. Mild to moderate dementia coprophilic patients, incidents after external intervention.

Year	Mild to moderate dementia*	Positive practice overcorrection procedure (1 week protocol)**		Disciplinary enquiry (1 week protocol)**		SSRIs (3 months protocol)		Specialized bondage during bed time (1 month protocol)	
		1-5 per day	1-5 per week	1-5 per day	1-5 per week	1-5 per day	1-5 per week	1-5 per day	1-5 per week
2011	14	12	2	14	0	11	3	4	10
2012	5	4	1	5	0	3	2	1	4
2013	5	5	0	5	0	4	1	1	4
2014	6	6	0	5	1	4	2	2	4
2015 (first 6 months)	2	2	0	2	0	1	1	0	2
Total 32									

*. MMSE score ⁵⁰: 10-24 points. GCT score ⁵¹: 10-26 points.

**. Possible bias: some medication was used.

Table 4. Severe dementia coprophilic patients, incidents after external intervention.

Year	Severe dementia*	Positive practice overcorrection procedure (1 week protocol)**		Disciplinary enquiry (1 week protocol)**		SSRIs (3 months protocol)		Specialized bondage during bed time (1 month protocol)	
		1-5 per day	1-5 per week	1-5 per day	1-5 per week	1-5 per day	1-5 per week	1-5 per day	1-5 per week
2011	3	3	0	3	0	2	1	0	3
2012	0	0	0	0	0	0	0	0	0
2013	1	1	0	1	0	1	0	0	1
2014	1	1	0	1	0	1	0	0	1
2015 (first 6 months)	0	0	0	0	0	0	0	0	0
Total 5									

*. MMSE score [45]: 0-9 points. GCT score [46]: 0-9 points.

**. Possible bias: some medication was used.

11. Discussion

Overcorrectional behaviour patterns (repetition, punishment, reward, occupational therapy, hygiene procedures, etc), are a well used modality for behaviour alternation in dementia patients (early to moderate stage mainly) [29].

Several pharmacologic treatment modalities exist to address the practices of coprophagia and scatolia in the demented elderly population. The treatment of coexisting psychiatric illness, relief from constipation and pruritis ani, and ensuring the maintenance of good oral hygiene have all been reported to be effective. Drugs such as selective serotonin reuptake inhibitors (SSRIs), antipsychotics, tricyclic antidepressants, and Aricept have resulted in improvement in some cases. As SSRIs are widely used among our patients, they could be easily selected as a proposed drug treatment to study changes in coprophilic behaviour [47].

For the specialized bondage restriction, with regard to definitions, the difference between restrictions of freedom and the deprivation of freedom is unclear. During 2012 the Hellenic Ministry of Health declared the "Restriction Ethics for Mental impairment Patients". These laws were fairly detailed but tend to be restricted to the compulsory detention of a person with a mental disorder in an institution, or establishment for a set period of time for treatment, and in the interests of their safety and/or that of other people (caregivers, relatives, medical personnel). A variety of terms are being used depending on the country which if translated might be involuntary or compulsory "detention" or "internment" or the restriction or deprivation of liberty or freedom of a patient. Apart from these laws, a clear definition of deprivation of freedom is often lacking. "The distinction between a deprivation of, and restriction upon, liberty is merely one of degree or intensity and not one of nature or substance". The use of restraint, particularly on frail, older people with dementia, is generally considered unethical or harmful and is rarely justifiable. However, there may be exceptional cases when this is not so and it could be considered lawful and/or ethically justifiable. To avoid confusion, it is preferable to attribute a neutral meaning to the terms "restraint" or "bondage" and then to consider whether or not its use is ethical. This means that a definition of restraint should preferably not include a reference to deliberate prevention or a deliberate intention to prevent or restrict freedom of movement. Theorists consider whether the nature of an act is right or wrong irrespective of the consequences. Something is believed to be good if it is consistent with moral rules and principles. Our team thinks that a specialized bondage (high quality, soft materials, individually shaped forms) is not an abuse, but when applied under the law protocol (acceptance, agreement from all parts), is rather a "protective" measure, frequently demanded, thus ethically applied [48-49].

Unfortunately only the specialized bondage was

promising, a modality that usually rises concerns among theorists. The lack of standard observational methods and tools (protocols, batteries, tests, etc) could produce some BIAS by itself. More studies should be carried out, adding more drugs, or drug combinations for coprophilia recurrence to be investigated.

12. Conclusion

A paraphilic coprophilic (pica) dementia patient create health, treatment, coping, quality of live issues for both himself and the caregivers. Coprophilia in dementia is an understudied behaviour that needs further inquiry. Although the ultimate prize of a cure remains elusive, the confrontation should always include psychological and pharmacological modalities for treatment. Having a socially non tolerable behaviour those patients should always be treated with respect and patience, under holistic therapeutical protocols form the caregivers. After all empathy is their supreme need, a prelude towards a qualitative daily regime, a breakthrough in their troubled minds, a possible way of treatment.

Ethical Consideration

All innervations were applied under strict protocols, by using the Greek laws on ethics and guidelines. Thus, no ethical consideration are in place.

References

- [1] Hsiao HC, Chao HC, Wang JJ. Features of problematic eating behaviors among community-dwelling older adults with dementia: Family caregivers' experience. *Geriatric Nursing* 34 (2013) 361e365.
- [2] Nagaratnam N, Lim W, Hutyn S. Some problematic behaviors in Alzheimer's dementia. *Archives of Gerontology and Geriatrics* 32 (2001) 57-65.
- [3] Baker DJ, Valenzuela S, Wieseler NA. Naturalistic Inquiry and Treatment of Coprophagia in One Individual. *Journal of Developmental and Physical Disabilities* 17 (2005).
- [4] Parry-Jones B, Parry-Jones WLL. Pica: Symptom or eating disorder? A historical assessment. *British Journal of Psychiatry*. 160 (1992) 341-354.
- [5] Friedin BB, Johnson HK. Treatment of a retarded child's faeces- smearing and coprophagic behavior. *Journal of Mental Deficiency Research* 23 (1979) 55-61.
- [6] Silva WP. ABC of sexual health, Sexual variations. *BMJ* 318 (1999) 654-656.
- [7] Vaknin S. *Pathological Narcissism*. Narcissus Publishing, Italy (2013) (ebook-google books).
- [8] Brabant E, Falzeder E, Gianpieri-Deutsch P. *The Correspondence of Sigmund Freud and Sándor Ferenczi: 1908-1914*. Cambridge, USA: Harvard University Press (1993).

- [9] Moreira LAA, Pessoa DMA, Sousa MBC. Socio-Sexual communication: a review of the sensory modalities used by non-human primates. *Oecologia Australis* 17 (2013): 113-129.
- [10] Setchell JM, Vaglio S, Cecchi MJ, Boscaro F, Calamal L, Knapp LA. Chemical composition of scent-gland secretions in an old world monkey (*Mandrillus sphinx*): influence of sex, male status, and individual identity. *Chemical Senses* 35 (2015) 205-220.
- [11] Nash LT, Fritz J, Alford PA, Brent L. Variables Influencing the Origins of Diverse Abnormal Behaviors in a Large Sample of Captive Chimpanzees (*Pan troglodytes*). *American Journal of Primatology* 48 (1999) 15-29.
- [12] Danford DE. Pica and nutrition. *Annual Review of Nutrition* 2 (1982) 303-322.
- [13] Hunt CE, Harrington DD. Nutrition and nutritional diseases of the rabbit. In Weisbrotle SH, Flatt RE, Kraus AL (Eds.), *The biology of the laboratory rabbit*. New York: Academic Press (1974) 403-405.
- [14] Sakamaki T. Coprophagy in wild bonobos (*Pan paniscus*) at Wamba in the Democratic Republic of the Congo: a possibly adaptive strategy? *Primates* 51 (2010) 87-90.
- [15] Fish KD, Sauter ML, Loudon JE, Cuzzo FP. Coprophagy by wild ring-tailed lemurs (*Lemur catta*) in human-disturbed locations adjacent to the Beza Mahafaly Special Reserve, Madagascar. *Am J Primatol* 69 (2007) 713-718.
- [16] Samsi K, Manthorpe J. Everyday decision-making in dementia: findings from a longitudinal interview study of people with dementia and family carers. *Int Psychogeriatr* 25 (2013) 949-961.
- [17] Fairburn CG, Hope RA. Changes in Eating in Dementia. *Neurobiology of Aging* 9 (1988) 28-29.
- [18] DeVries K. The nearly others: the attic vision of Phrygians and Lydians. In Cohen B. (Ed.), *Not the Classical Ideal: Athens and the Construction of the Other in Greek Art*. Leiden: Brill, (2000) 338-363.
- [19] Himmelmann N. *Minima Archeologica: Utopie und Wirklichkeit der Antike*. Mainz am Rhein: Philipp von Zabern (1996).
- [20] Sutton RF. The good, the base, and the ugly: the druggery orgy in attic vase painting and the Athenian self. In Cohen B, *Not the Classical Ideal: Athens and the Construction of the Other in Greek Art*. Leiden: Brill (2000) 179-202.
- [21] Series H, Dégano P. Hypersexuality in dementia. *Advances in Psychiatric Treatment* 11 (2005) 424-431.
- [22] Dean T. *Beyond Sexuality*. London: University of Chicago Press (2000).
- [23] Akhat S. *Comprehensive Dictionary of Psychoanalysis*. London: Karnac Books (2009).
- [24] Liebal K, Muller C, Pika S. Gestural communication in nonhuman and human primates. Amsterdam: John Benjamins (2005).
- [25] Pika S, Liebal K, Tomasello M. 2003 Gestural communication in young gorillas (*Gorilla gorilla*): gestural repertoire, learning, and use. *Am J Primatol* 60 (2003) 95-111.
- [26] Pika S, Liebal K, Tomasello M. The gestural repertoire of bonobos (*Pan paniscus*): flexibility and use. *Am J Primatol* 65 (2005) 39-61.
- [27] Josephs KA. Frontotemporal dementia: a peek under its invisibility cloak. *The Lancet* 14 (2015) 236-237.
- [28] Parry-Jones B, Parry-Jones WLL. Pica: Symptom or eating disorder? A historical assessment. *British Journal of Psychiatry* 160 (1992) 341-354.
- [29] Foxx RM, Martin ED. Treatment of scavenging behavior (coprophagy and pica) by overcorrection. *Behav Res & Therapy* 13 (1975) 153-162.
- [30] Baker DJ, Valenzuela S, Wieseler NA. Naturalistic Inquiry and Treatment of Coprophagia in One Individual. *Journal of Developmental and Physical Disabilities* 17 (2005) 361-367.
- [31] Begg AH, McDonald C. Scatolia in elderly people with dementia. *International Journal of Geriatric Psychiatry* 4 (1989) 53-54.
- [32] Ata T, Terada S, Yokota O, Ishihara T, Fujisawa Y, Sasaki K, Kuroda S. Wandering and fecal smearing in people with dementia. *International Psychogeriatrics* 22 (2010) 493-500.
- [33] Jones GMM, Miesen BML. *Care-giving in Dementia: Research and Applications*, Volume 2. London: Psychology Press (1997).
- [34] Mahoney CJ, Beck J, Rohrer JD, et al. Frontotemporal dementia with the C9ORF72 hexanucleotide repeat expansion: clinical, neuroanatomical and neuropathological features. *Brain* 135 (2012) 736-750.
- [35] Beck DA, Froberg NR. Coprophagia in an elderly man: a case report and review of the literature. *Int J Psychiatry Med* 35(2005) 417-27.
- [36] Josephs KA, Whitwell JL, Parisi JE, Lapid MI. Coprophagia in neurologic disorders. *Journal of Neurology* 263 (2016) 1008-1014.
- [37] Ing DI, Roane HS, Veenstra RA. Functional Analysis and treatment of Coprophagia. *J Appl Behav Anal* 44 (2011) 151-155.
- [38] Ing A, Roane HS, Veenstra RA. Functional analysis and treatment of coprophagia. *Journal of Applied Behavior Analysis* 1 (2014) 151-155.
- [39] Stein DJ, Hollander E. The spectrum of obsessive-compulsive related disorders. In: Hollander E, editor. *Obsessive-Compulsive Related Disorders*. Washington: American Psychiatric Press (1993).
- [40] Szabo CP, Van Rooy W, Allwood CW. Pica- Is it a variant of obsessive-compulsive disorder? A case report. *S Afr Med J* 85 (1995) 1390-1391.
- [41] Gundogar D, Demir SB, Eren I. Is pica in the spectrum of obsessive-compulsive disorders? *General Hospital Psychiatry* 25 (2003) 293-294.
- [42] Hergüner S. Is Pica an eating disorder or an obsessive-compulsive? *Progress in Neuro-Psychopharmacology & Biological Psychiatry* 32 (2008) 2010-2011.
- [43] Choure J, Quinn K, Franco K. Baking-soda Pica in an adolescent patient. *Psychosomatics* 47 (2006) 531-532.

- [44] Bhatia MS, Gupta R. Pica responding to SSRI: an OCD spectrum disorder? *World J Biol Psychiatry* 8 (2007) 1-3.
- [45] Holmes KJ. The Message behind the Behavior: Successful Management of Scatolia in a Resident with Dementia. (Poster Abstracts). *JAMDA* 14 (2013) B3-B26.
- [46] Mason T. Scatolia: psychosis to protest. *Journal of Psychiatric and Mental Health Nursing* 3 (1996) 303-311.
- [47] Sharma T. Coprophagia in Geriatric Patients With Cognitive Impairment. *The Resident's Journal* 7 (2012).
- [48] Alzheimer Europe. 2012: The Ethical Issues Linked to Restrictions of Freedom of People with Dementia. [http://www.alzheimer-europe.org/Alzheimer-Europe/Our-work/Completed-projects/2012-The-Ethical-Issues-Linked-to-](http://www.alzheimer-europe.org/Alzheimer-Europe/Our-work/Completed-projects/2012-The-Ethical-Issues-Linked-to-Restrictions-of-Freedom-of-People-with-Dementia)
- [49] Hellenic Official Gazette of the Greek State. "Restriction Ethics for Mental impairment Patients". Athens: Ministry of Health (2012).
- [50] Fountoulakis KN, Tsolaki M, Chantzi H, Kazis A. Mini Mental State Examination (MMSE): A validation study in Greece. *Am J Alzheimers Dis Other Demen* 6 (2000) 342-345.
- [51] Tsoucalas G, Bourelia S, Kalogirou V, Giatsiou S, Mavrogiannaki E, Gatos G, Galanos A, Repana O, Iliadou E, Antoniou A, Sgantzios M, Gatos K. End-stage dementia spark of life: reliability and validity of the "GATOS" questionnaire. *Curr Alzheimer Res* 12 (2015) 179-188.