

Personality traits in a sample of Italian filicide mothers

Tratti di personalità in un campione di donne italiane figlicide

NICOLETTA GIACCHETTI¹, PAOLO ROMA², CORINNA PANCHERI¹, RICCARDO WILLIAMS³,
VALENTINA MEUTI^{1,4}, FRANCA ACETI¹

*E-mail: nicoletta.giacchetti@uniroma1.it

¹Post-Partum Disorders Unit, Department of Human Neuroscience, Sapienza University of Rome, Italy

²Department of Human Neuroscience, Sapienza University of Rome, Italy

³Department of Clinical Psychology, Sapienza University of Rome, Italy

⁴Department of Mental Health (ASL Roma 5), Palestrina, Rome, Italy

SUMMARY. Several studies focused on mothers' psychopathological and environmental risk factors linked to filicide, to understand the genesis of this violent act. Considering the transition to motherhood a critical period for any woman, requiring the activation of deep personality resources, the aim of this study was to detect, in a sample of 16 filicide women hospitalized in Italian Forensic Psychiatric Hospitals, the recurrent characteristics with a specific focus on personality traits. Women were assessed using Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), Big Five Inventory (BFI) and Temperament and Character Inventory (TCI). The BFI and TCI profiles seem to overlap showing a personality profile characterized by a rigid control of aggressive impulses, the avoiding of unconscious fears and the masking of feelings of negativity. Examining the mother's mental state with respect to personality traits, could help clinicians to detect specific temperament patterns that may carry out impulsive violent behaviors, if correlated with other psychopathological and environmental factors.

KEY WORDS: Childbirth, infanticide, postpartum depression, personality.

RIASSUNTO. Diversi studi si sono concentrati sui fattori di rischio psicopatologico e ambientale legati all'uccisione del proprio figlio, al fine di comprendere la genesi di questo atto così violento. Considerando che la transizione al ruolo di madre rappresenta un periodo critico per ogni donna, che richiede l'attivazione di profonde risorse di personalità, lo scopo di questo studio è stato di rilevare gli elementi clinici ricorrenti, in un campione di 16 donne figlicide ricoverate in un ospedale psichiatrico giudiziario italiano, con un focus specifico sui tratti di personalità. Le donne sono state valutate con l'intervista Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), il Big Five Inventory (BFI) e il Temperament and Character Inventory (TCI). I profili BFI e TCI sembrano sovrapporsi mostrando un profilo di personalità caratterizzato da un rigido controllo degli impulsi aggressivi, con l'evitamento di paure inconscie e il mascheramento di qualunque sentimento di negatività. Esaminare lo stato mentale delle madri a rischio, e nello specifico i loro tratti di personalità, potrebbe aiutare i clinici a individuare specifici modelli di temperamento che possono condurre a comportamenti violenti impulsivi quando correlati ad altri fattori psicopatologici e ambientali.

PAROLE CHIAVE: Parto, infanticidio, depressione *post partum*, personalità.

INTRODUCTION

Epidemiological data on deaths in infancy and childhood estimate that parents are responsible for more than half of the murders¹. Among the other cause of death, filicide rate ranges from 2% to 10%², even though a correct estimation of such episodes is difficult to achieve because they are often underestimated and miscategorised by other causes of death³.

Literature classify three type of child murdered: *neonaticide* refers to the murder of children by their parents within the first 24 hours of life; *infanticide* is used for the murder of a child that takes place within the first year of life; *filicide* broadly indicates the murder of offspring by parents, after the first year of life of the child⁴.

In neonaticide, mothers' profile is characterized by a young age (<25 years old) without a history of any psychiatric diagnosis. Some clinical reports of neonaticide describe a presentation of pregnancy denial associated with dissociative symptoms⁵⁻⁷. Socioeconomic difficulties are often reported along with the absence of a solid couple relationship or marriage as well as conflicts with partners or other family members. The pregnancy is often unwanted and when these women get with a newborn infant whose existence they find undesirable, they kill the infant, thereby eliminating the problem^{2,8-10}. While neonaticide is enacted on impulse, infanticide and filicide are mostly premeditated⁸. Whereas during the first year after birth murders are mostly committed by the mothers, during later infancy it is the fathers who are more frequently involved in filicide¹¹. A recent study found that the

mean age of child victims of mothers found not guilty by reason of insanity in two states was older than 3 years¹². In infanticide and filicide, mothers are older (>25 years old) than those who commit neonaticide. Several studies have focused on the psychopathological and social environmental risk factors of the filicide mothers linked to their offspring's murders. In particular, a psychiatric history the attachment style and socioeconomic factors (i.e. economic difficulties, couple conflicts, lack of prenatal care) resulted as having cumulative interactions in offsprings' homicides. A high level of stress with a lack of any psychological or emotional support was reported at the moment of the murder. Indeed, severe couple conflicts were described in long-term relationships/marriages as well as disagreements with the family of origin^{4,11,13-19}. Recent studies highlighted that the mother's internal working models of attachment (mainly insecure and disorganized patterns of attachment) are relevant variables to predict not only the caregiver's sensitivity and emotional availability, but also the new mothers' behavioral adjustment (including violent behaviors), levels of perceived distress and even phase-related psychopathological outcomes²⁰⁻²⁵.

The incidence of psychiatric diagnoses has been extensively investigated in the literature, representing an important risk factor for filicide in comparison with other variables, such as socioeconomic and environmental variables^{15,16}. The most relevant mental conditions connected with infant murders are psychosis and anxiety/mood disorders⁴. Up to 20% of women present some kind of mood disorders after the birth of a child²⁶. Although some new mothers with depression report intrusive and obsessive thoughts about being able to harm their child, this personal emotional condition usually is confined at the only fear of hurting the newborn²⁷. Instead, severe psychotic depression can be at higher risk of suicide and infanticide²⁸. In a study by Lewis and Bunce¹⁷ of 55 filicidal women, 52.7% were psychotic. However, it should be considered that puerperal psychosis only affects 1-2% of the female population and just 4% of these women, if untreated, probably commit infanticide²⁹. Several studies also underlined a significant percentage of personality disorder diagnoses among these mothers³⁰. Lewis and Bunce¹⁷ reported a prevalence of diagnoses of personality disorders (67%) respect to other psychiatric syndromes. Personality disorders may represent a diathesis of vulnerability during the postnatal period or during the offspring's growth leading to the development of depressive episodes^{31,32}, often detected at the moment of infant murders. Specifically, an increased risk of affective disorders during the first year after birth seems to be related to specific personality traits, especially for neuroticism and introversion^{33,34}. In the neurotic personality the management of stressful events and adaptive mechanisms seems to be compromised because of an emotional instability and a generalized tendency to experience negative emotions. However, the presence of a psychiatric diagnosis in the peri-partum period and a neurotic and introverted personality trait and the consequent affective failure, do not seem to be enough to justify the violent act accomplished.

CURRENT STUDY

Considering that the transition to motherhood represents a critical stage for any woman³⁴⁻³⁶, requiring a strong activa-

tion of deep personality resources, the main aim of this study was to analyse, in a sample of infanticide/filicide women hospitalized in Italian Forensic Psychiatric Hospitals, the specific personality traits to detect a possible personality profile. Secondly, we also observed the socio-demographic characteristics, the psychiatric history and the different life stress events of this sample, in order to confirm previous data from the literature. To date, no study handled with defining the psychological profile of filicide women, assessed after the Court's judgment. Understanding the psychological traits of these women, out of a legal context, means entering into their personality being able to gather useful information for the assessment of the potential risk of filicide acts.

MATERIAL AND METHODS

Sample selection

This study examined 16 mothers hospitalized in Forensic Psychiatric Hospitals in Italy, for having killed their own biological children, using data supplied by clinical documentation and by direct interview. The assessment was made after receiving the sentence, from 1 to 4 years after the murder. We collected the sample from 2014 to 2017. Exclusion a-priori criteria were: diagnosis of mental retardation, poor knowledge of Italian or other verbal communication limitations that compromised the ability of the subject to follow the research protocol. Before being enrolled in the study, participants were informed of the nature and objectives of the research, and give the consent to research. The study was approved by the local ethics committee.

This group was compared with results of a group of 106 psychotic and depressed mothers, outpatient of our psychiatric ambulatory, selected in order to have similar age and instruction level of filicide ones.

Procedures

All subjects included in the study group were assessed with The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)³⁷: a semi-structured interview for making the major DSM-IV Axis I diagnoses, broken down into separate modules corresponding to categories of diagnoses. The instrument was administered by a specialist psychiatrist. The following instruments were administered:

- a self-administered personal data sheet to collect information on sociodemographic aspects, details about pregnancy, family and personal psychiatric history, life stressors, traumatic events and familial or marital conflicts;
- in order to evaluate the personality style of these filicide/infanticide women, we assessed the Italian version of the Big Five Inventory (BFI)³⁸: a 44-items self-administered questionnaire that measures an individual on the BFI Factors (dimensions) of personality³⁹. The BFI Factors are seen as dual-personality characteristics. There is extraversion vs. introversion, agreeableness vs. antagonism, conscientiousness vs. lack of direction, neuroticism vs. emotional stability, openness vs. closeness to experience. The BFI structure captures, at a broad level of abstraction, the commonalities among most of the existing systems of personality description, and provides an integrative descriptive model for

Personality traits in a sample of Italian filicide mothers

personality research. BFI items are rated on a 5-point scale ranging from 1=disagree strongly to 5=agree strongly. For a clearer graphic representation, BFI scores of the sample group were translated in POMP scores. A POMP score is a linear transformation of any raw metric into a 0 to 100 scale, where 0 represents the minimum possible score and 100 represents the maximum possible score⁴⁰.

- in order to evaluate the behaviour style of these filicide/infanticide women we assessed the Italian version of the Temperament and Character Inventory (TCI)⁴¹: a 240-item inventory that operates with seven dimensions of personality traits: four temperaments (Novelty Seeking, Harm Avoidance, Reward Dependence and Persistence) and three characters (Self-Directedness, Cooperativeness and Self-Transcendence). For each of the 235 items, respondents indicated the extent to which they usually act or feel on a 5-point scale ranging from 'very false for me' (1) to 'very true for me' (5).

Data analysis

Descriptive statistics are reported for sociodemographic variables, psychiatric diagnosis and psychiatry family history, life stressors, traumatic events and personality profiles. Student T test was used to compare filicide group with outpatient sample.

RESULTS

Sociodemographic variables

Filicide had from 32 to 45 years ($M=38.13$, $SD=3.93$). The majority were married or with a stable partner when the crime occurred (93.7%). Education years were 13.31 ($SD=3.85$): 31.2% had a primary school diploma, 43.7% had a high school diploma, while four had a university degree. 62.5% of the participants were employed at the time of the murder. Most women had 2 or 3 children at the time of the murder (56.2%), and 31.2% reported complications during pregnancy (Table 1). Comparison group of outpatient had similar demographic characteristics without significant differences in age ($M=38.89$; $SD=3.13$), marital status and instruction ($M=12.94$; $SD=3.70$).

With regard to traumatic or stressful events that had occurred in their lifetime, 43.7% ($N=7$) of the filicide reported having suffered mourning, 50% ($N=8$) reported conflicts with the family of origin, 37.5% ($N=6$) reported marital conflicts, while illness of a relative was reported by 37.5% ($N=6$) of the sample.

Offence analysis

Offence analysis is summarized in Table 4. Among the 16 women hospitalized in Forensic Psychiatric Hospitals in Italy, who had killed their own biological children, 5/16 women committed infanticide (age of the children ranged from 35 to 240 days), 7/16 committed filicide (age from 13 months to 16 years) and 3/16 committed both infanticide (age from 21 to 90 days) and filicide (age from 3 to 10 years) at the same

Table 1. Socio-demographic variables of the filicide women ($n=16$) and of the control sample ($n=106$).

Variables	Categories	Filicide* n (%)	Psychotic and depressed outpatient n (%)
Civil status	Single	0 (0)	0 (0)
	Married/ cohabitant	15 (93.7)	98 (92.5)
	Separated/divorced	0 (0)	1 (0.9)
	Widow	1 (6.2)	7 (6.6)
Education	Primary school	5 (31.2)	35 (33.2)
	High school diploma	7 (43.7)	42 (39.8)
	University	4 (25)	29 (27.4)
Working position	Student	0 (0)	0 (0)
	Housewife	3 (18.7)	21 (19.9)
	Unemployed	1 (6.2)	1 (6.1)
	Employee	10 (62.5)	69 (64.9)
	Self-employed	2 (12.5)	15 (9.1)
N. of pregnancies	1	5 (31.2)	63 (59.3)
	2-3	9 (56.2)	40 (37.8)
	>3	2 (12.5)	3 (2.8)
Complication during pregnancies	Yes	5 (31.2)	34 (32.1)
	No	5 (31.2)	72 (67.9)
Age		38.1 (3.9) y	38.89 (3.13)
		Mean (SD)	Mean (SD)

*Due to occasional missing values the percentages do not sum up to 100%.

time. In most cases the child killed was male. Stabbing was the most common method of filicide (31.2%). Choking as a method of death occurred in four cases (25%), drowning in four cases too (25%), poisoning and burning in one case each (6.2%). Seven (43.7%) of the 16 women in the current sample attempted suicide following the death of their child, one killed her own partner. Additionally, no family members or close friends in any cases reported concerns related to the mothers' risk to kill.

Psychiatric profile

At the time of clinical evaluation, we found a good compensation of psychopathological symptoms in 13 out of 16 women. Three patients, with a psychotic spectrum disorder, were still in an acute phase. At the time of the evaluation, all patients were taking medication: eight (50%) were taking a combination of antidepressants and antipsychotics, three (18.2%) mood stabilizers and antipsychotics, two (12.5%)

Table 2. Personal and familial psychiatric history of the filicide women (N=16).

Variables	Categories	Filicide N (%)
Previous psychiatric disorders	Mood disorder/anxiety	9 (56.2)
	Personality disorders with addiction	1 (6.2)
	Psychosis	3 (18.7)
	No	3 (18.7)
Familial psychiatric history (mother)	Mood disorder/anxiety	8 (50)
	Eating disorder	0 (0)
	Alcoholism	1 (6.2)
	Psychosis	2 (12.5)
Familial psychiatric history (father)	Mood disorder/anxiety	5 (31.2)
	Alcoholism	5 (31.2)
Familial psychiatric history (siblings)	Mood disorder/anxiety	0 (0)
	Drug addiction	0 (0)
	Eating disorder	0 (0)
	Psychosis	0 (0)

antidepressants and mood stabilizers, one (6.2%) just antidepressants and two (12.5%) just antipsychotics. The diagnoses reported in forensic psychiatric examinations carried out after the murders are summarized in Table 3 and 4. Five women (31.5%) received a diagnosis of Mood Disorder without psychotic features: two women received a diagnosis of Post-Partum Depression (one with dissociative symptoms), two a diagnosis of depressive episode in Bipolar disorder and one a diagnosis of mixed episode with dissociative symptoms in Bipolar Disorder. Eleven women (68.7%) received a diagnosis of a psychiatric disorder with psychotic features: three were diagnosed with Major Depressive Disorder, one with mixed episode in Bipolar Disorder, two with Brief Psychotic Disorder, one with acute psychotic episode in Delusional Disorder, two with Schizophrenia and two with depressive episode in Schizoaffective Disorder.

The SCID-I interview showed the following psychiatric diagnosis in the past of the 16 women (only the Axis I diagnosis that represented the main clinical problem of participants were considered): nine subjects (56.2%) suffered mood or anxiety disorders, one (6.2%) personality disorder in association with drug addiction; and three women (18.7%) had received a diagnosis of a psychotic disorder. Table 4 shows the 16 subjects' forensic diagnosis and psychiatric history. Nine women (56.2%) reported having had at least one interaction with a mental health specialist in the past and five (31.2%) women reported a previous hospitalization in a psychiatric hospital. Fourteen women (87.5%) had a family history of psychiatric illness: the disorders most frequently reported were a mood disorder among the patients' mothers

Table 3. Psychiatric Axis I diagnosis of the filicide women (N=16).

Axis I diagnosis	N	%
No psychotic features	5	31.2
Post-partum depression	1	6.2
Post-partum depression with dissociative features	1	6.2
Bipolar disorder (depressive episode)	2	12.2
Bipolar disorder (mixed episode) with dissociative features	1	6.2
With psychotic features	11	68.7
Major depression with psychotic features	3	18.7
Bipolar disorder (mixed episode) with psychotic features	1	6.2
Brief psychotic disorder	2	12.2
Acute psychotic episode in delusional disorder	1	6.2
Schizophrenia	2	12.2
Schizoaffective disorder (depressive episode)	2	12.2

(50%) and alcoholism among the patients' fathers (31.2%).

BFI

As can be seen from Figure 1, our sample shows a general propensity to have low scores on the Neuroticism dimension scale ($M=23.8\pm5.9$) and high scores on the Extraversion ($M=28.1\pm6$), Agreeableness ($M=37.8\pm5.3$) (the highest score

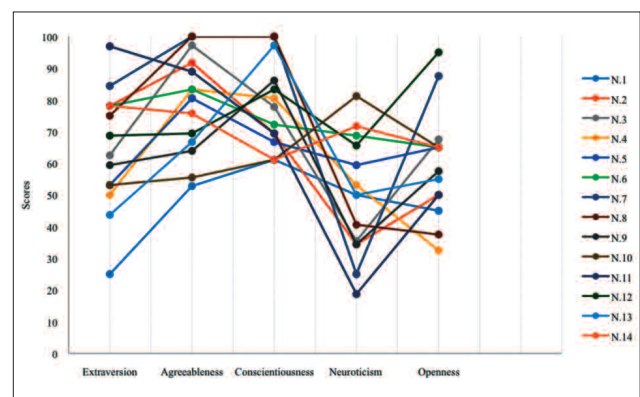


Figure 1. BFI profiles of the sample group in POMP scores. A POMP score is a linear transformation of any raw metric into a 0 to 100 scale, where 0 represents the minimum possible score and 100 represents the maximum possible score. Each colour represents a subject. The figure is reproduced in color on the website www.rivistadi-psichiatria.it

Personality traits in a sample of Italian filicide mothers

Table 4. Diagnosis and offence analysis of the sample (N=16).

Case	Forensic diagnosis	Previous psychiatric disorders	Killing method	Sex and age of the victims	Suicide attempt
1	Post-partum depression	No	Choking	F, 5 months	No
2	Brief psychotic disorder	Mood/anxiety disorder	Drowning	M, 3 years (1st) and M, 21 days (2nd)	Yes
3	Depression with psychotic features	Psychotic disorder	Stabbing	M, 7 years	No
4	Depression with psychotic features	Psychotic disorder	Stabbing	F, 16 years	No
5	Brief psychotic disorder	No	?	M, 3 years (1st) and M, 3 months (2nd)	No
6	Schizophrenia	Schizophrenia	Drowning	?, 13 months	Yes
7	Depressive episode in schizoaffective disorder	Personality disorder with addiction	Burning	F, 8 months	No
8	Mixed episode with dissociative features in bipolar disorder	No	Drowning	M, 35 days	No
9	Depressive episode in bipolar disorder	Mood/anxiety disorder	Choking	M, 4 years	Yes
10	Post-partum depression with dissociative features	Mood/anxiety disorder	Drowning	M, 5 months	No
11	Paranoid schizophrenia	Mood/anxiety disorder	Stabbing	M, ?	Yes
12	Depressive episode in schizoaffective disorder	Mood/anxiety disorder	Stabbing	M, 13 years	No
13	Mixed episode with psychotic features in bipolar disorder	Mood/anxiety disorder	Stabbing	M, 1 month	Yes
14	Major depression with psychotic features	Mood/anxiety disorder	Poisoning	M, 5 years	No
15	Acute psychotic episode in delusional disorder	Mood/anxiety disorder	Choking	F, 7 years (1st) and F, 10 years (2nd)	Yes
16	Depressive episode in bipolar disorder	Mood/anxiety disorder with psychotic features	Drowning	M, 1 year	Yes

in 7/14 subjects) Conscientiousness ($M=36.9\pm5.1$) (the highest score in 5/14 subjects) and Openness ($M=34.3\pm7$) scales (Figure 1). The comparison with the psychiatric outpatient sample (Table 5) shows that the Agreeableness, Openness, Extraversion and Conscientiousness mean scores were substantially higher in the filicide sample, while the neuroticism was lower in the filicide ($p<.01$).

TCI

TCI mean scores were the following: Novelty Seeking $M=92.1\pm21.1$, Harm Avoidance $M=94.9\pm16.9$, Reward Dependence $M=107\pm17.4$, Persistence $M=129.8\pm15.6$, Self-directedness $M=146.8\pm22.9$, Cooperativeness $M=143.2\pm19.2$ and Self-transcendence $M=71.1\pm22.1$. The comparison with the psychiatric outpatient sample (Table 6) shows that Novelty Seeking, Persistence, Self-directedness and Cooperativeness were substantially higher in the filicide sample, while Harm Avoidance was lower ($p<.01$). Reward Dependence and Self-Transcendence were lower but without statistical significance.

Table 5. BFI means and standard deviations of the filicide sample (N=14) and of the Outpatient sample (N=106).

Dimension	Filicide N=14 M (SD)	Psychotic and depressed outpatient N=106 M (SD)	t
Extraversion	28.1(6)	23.1 (5.3)	3.365*
Agreeableness	37.8 (5.3)	29.4 (5.7)	5.562*
Conscientiousness	36.9 (5.1)	31.4 (5.4)	3.701*
Neuroticism	23.8 (5.9)	29.6 (4.3)	-3.903*
Openness	34.3 (7)	24.5 (5.4)	6.594*
* $p<.01$			

DISCUSSION

The main aim of our study was to assess some personality traits of filicide mothers in order to evaluate specific patterns

Table 6. TCI means and standard deviations of the filicide sample (N=14) and the outpatient sample (N=106).

Dimension	Filicide N=14 M (SD)	Psychotic and depressed outpatient N=106 M (SD)	t
Temperaments			
Novelty seeking (NS)	92.1 (21.1)	74.28 (19.36)	3.204*
Harm avoidance (HA)	94.9 (16.9)	116.03 (21.42)	-3.538*
Reward dependence (RD)	107 (17.4)	109.84 (17.36)	-.5179
Persistence (PS)	129.8 (15.6)	90.21 (13.16)	10.351*
Characters			
Self-directedness (SD)	146.8 (22.9)	94.13 (16.48)	10.704*
Cooperativeness (CO)	143.2 (19.2)	107.48 (13.32)	8.916*
Self-transcendence (ST)	71.1 (22.1)	74.4 (18.58)	-.611

*p< .01

in the personality profiles of these mothers. Overall the psychometric results describe a group of women who generally have a self-image of virtuosity, completely incompatible with their story and with the psychiatric reports. In the BFI test, the filicide sample compared to the outpatient psychiatric sample, obtained higher scores in the Conscientiousness, Agreeableness, Extraversion and Openness dimensions and lower scores in Neuroticism dimension, so endorsing a profile that could be defined totally positive. In detail the BFI' results could be interpreted as following:

- 1) high level of Conscientiousness in filicide sample represent the tendency to display more self-discipline, to act dutifully and to regulate and direct impulses⁴²;
- 2) high levels of Agreeableness and Extraversion are associated with a sympathetic and kind attitude, but also with the attempt to inhibit negative feelings trying to show a socially acceptable self-image⁴³. High agreeable individuals may be able also to short-circuit the cue-aggression sequence⁴⁴;
- 3) low levels of Neuroticism are associated with a high capacity to control affectivity, including feelings of anxiety, violent hostility, impulsiveness and vulnerability;
- 4) high Openness scores in our sample may indicate the attempt to show a healthy and functional socially acceptable self-image.

When the TCI test results were compared with those of a sample of outpatient psychiatric population with similar psychiatric disorders, filicide women showed higher scores at the Novelty Seeking, Persistence, Self-directedness and Cooperativeness dimensions, and lower scores at the Harm Avoidance scale, endorsing also in this test a profile that could be defined totally positive. In detail the TCI' results could be in-

terpreted as following: 1) high scores in the Cooperativeness, show a tendency to wear a social image of niceness and empathy; 2) high scores in Self-directedness is associated with a high internal self-control, confirming a profile of hyper and rigid self-regulation; 3) high scores in Persistence describe strong, active and stable people; 4) high levels of Novelty Seeking may be associated with more unexpressed anger and hostility; 5) low Harm Avoidance, shows the tendency to delete negative feelings, over-controlling disturbing emotions^{41,45}.

Previous research found that high levels of Harm Avoidance and low levels of Self-directedness – which means at the opposite of our filicide sample – correlates with symptoms of depression and anxiety, and represent non-specific indicators of psychopathology^{46,47}. It would be also useful to note that women with perinatal depression showed lower Cooperativeness scores than healthy postpartum women⁴⁸ while higher Neuroticism significantly increase the risk of perinatal depressive symptoms in postpartum women^{49,50}, and high degree of Agreeableness and Conscientiousness are related to a lower risk of perinatal depression³⁴. Therefore, the result of the test highlight that the filicide women (11/16 with a diagnosis of psychotic episode, 9/16 with a diagnosis of depressive episode), present themselves showing profiles of healthy people, which have personality traits that are not correlated to any indicator of psychopathology differing both from the outpatients' depressive, the psychotic population and the population of women with perinatal depression. Interestingly, our filicide mothers TCI scores, resulted in a medium range level when compared to the range scores of a healthy group of people, without any diagnosis of mental disorders and without prior criminal records⁴¹.

Another aim of the study was to investigate the presence of common socio-demographic features and clinical risk factors among the sample, not easy to distinguish because of the great variability among the reported diagnoses. Moreover 3 out 16 of the women resulted in an acute psychotic phase, making it difficult to collect some information.

Descriptive results from this study seem to tally with data from the literature evidencing that major psychiatric disorders with psychotic features are among the psychiatric conditions most likely to be present in infanticide/filicide women. Our sample was made also of five women with a major affective disorder without psychotic features, two of them with dissociative symptoms. As confirmed by previous researches⁵⁻⁷, women from our sample with a dissociative episode killed younger infants (5 and 8 months). Among the several variables, a common aspect was represented by the familiarity of depression and alcoholism. With regard to traumatic or stressful life events, as expected, half of the women reported mourning and familial or marital conflicts, one third abuse from family members and all reported a personal history of neglect.

CONCLUSIONS

In summary, the personality traits that we detected in our filicide group of mothers define the tendency to over-control negative feelings and to inhibit unpleasant and disturbing impulses, appearing kind, virtuous and trustworthy.

Personality traits in a sample of Italian filicide mothers

We comment our results believing that the unconscious defence mechanisms of denial and repression of this group of women could be brought down because of stressors and life events, as could happen during the transitional phases of the pregnancy, leading to the loss of the rigid control on aggressive impulses and to the acting out of aggressive behaviours.

Far from considering such emotional deadlock as a final explanation for filicide, we suggest that examining the mental state and personality traits of mothers with a psychiatric diagnosis and a history of numerous stressful events, in the post-partum period and in the aftermath, could provide the clinicians with very relevant information. Indeed, facing severe psychopathology or other sources of personal distress, may carry out impulsive violent behaviors in some specific personality profile.

In particular, we propose that a timely diagnosis in addition to the exploration of the personality of the mother with a quick screening test like the Big Five Inventory, may help clinicians to detect important 'wake-up calls' for the risk of violent behaviors and giving to these at-risk women a closer psycho-social support in order to try to prevent such terrible consequences.

Finally, the indications coming from our results are to be interpreted cautiously owing to some limitations of the study such as the small sample size that prevent the reaching of generalized conclusions and the absence of a more specific comparison group. In particular, as suggested also by Susan Friedman⁴, we think that future researches should focus on comparing mentally ill filicidal mothers with mentally ill mothers of similar socioeconomic status who did not kill their children. This in order to confirm that infanticide/filicide women have an extremely specific and peculiar personality profile which should be studied and considered as a possible risk factor of this inconceivable act.

Acknowledgments: we would like to thank Dr. Antonino Calogero, past Director of the Forensic Psychiatric Hospital of Castiglione delle Stiviere, for his valuable help.

Conflict of interests: the authors have no conflict of interests to declare.

REFERENCES

1. Wolkind S, Taylor EM, Waite AJ, Dalton M, Emery JL. Recurrence of unexpected infant death. *Acta Paediatr* 1993; 82: 873-6.
2. Craig M. Perinatal risk factors for neonaticide and infant homicide: can we identify those at risk? *J R Soc Med* 2004; 97: 57-61.
3. UNICEF. Annual report 2003. Available on: <https://uni.cf/2MPUEPz> (last accessed on February 2019).
4. Friedman SH, Horwitz SM, Resnick PJ. Child murder by mothers: a critical analysis of the current state of knowledge and a research agenda. *Am J Psychiatry* 2005; 162: 1578-87.
5. Spinelli MG. A systematic investigation of 16 cases of neonaticide. *Am J Psychiatry* 2001; 158: 811-3.
6. ar V, Aydin N, van der Hart O, Steven Frankel A, ar M, Omay O. Acute dissociative reaction to spontaneous delivery in a case of total denial of pregnancy: diagnostic and forensic aspects. *J Trauma Dissociation* 2017; 18: 710-9.
7. Huchzermeier C, Heinzen H. A young woman who killed 5 of her own babies: a case of multiple neonaticide. *J Forensic Leg Med* 2015; 35: 15-8.
8. Porter T, Gavin H. Infanticide and neonaticide: a review of 40 years of research literature on incidence and causes. *Trauma Violence Abuse* 2010; 11: 99-112.
9. Putkonen H, Collander J, Honkasalo M-L, Lönnqvist J. Finnish female homicide offenders 1982-92. *J Forensic Psychiatry* 1998; 9: 672-84.
10. Resnick PJ. Murder of the newborn: a psychiatric review of neonaticide. *Am J Psychiatry* 1970; 126: 1414-20.
11. Bourget D, Grace J, Whitehurst L. A review of maternal and paternal filicide. *J Am Acad Psychiatry Law* 2007; 35: 74-82.
12. Friedman SH, Hrouda DR, Holden CE, Noffsinger SG, Resnick PJ. Child murder committed by severely mentally III mothers: an examination of mothers found not guilty by reason of insanity. *J Forensic Sci* 2005; 50: 1466-71.
13. Barone L, Bramante A, Lionetti F, Pastore M. Mothers who murdered their child: an attachment-based study on filicide. *Child Abuse Negl* 2014; 38: 1468-77.
14. Camperio Ciani AS, Fontanesi L. Mothers who kill their offspring: testing evolutionary hypothesis in a 110-case Italian sample. *Child Abuse Negl* 2012; 36: 519-27.
15. Grussu P. Neonaticide and infanticide: homicidal mothers, risk factors and preventive interventions. *Psicologia Clinica dello Sviluppo* 2012; 1: 37-64.
16. Hatters Friedman S, Resnick PJ. Child murder by mothers: patterns and prevention. *World Psychiatry* 2007; 6: 137-41.
17. Lewis CF, Bunce SC. Filicidal mothers and the impact of psychosis on maternal filicide. *J Am Acad Psychiatry Law* 2003; 31: 459-70.
18. McKee GR, Bramante A. Maternal filicide and mental illness in Italy: a comparative study. *J Psychiatry Law* 2010; 38: 271-82.
19. Resnick P. Child murder by parents: a psychiatric review of filicide. *Am J Psychiatry* 1969; 126: 325-34.
20. Aceti F, Carluccio GM, Meuti V, et al. Parental care and post partum depression: a case report. *Riv Psichiatr* 2012; 47: 221-5.
21. Aceti F, Baglioni V, Ciolli P, et al. Maternal attachment patterns and personality in post partum depression. *Riv Psichiatr* 2012; 47: 214-20.
22. Meuti V, Aceti F, Giacchetti N, et al. Perinatal depression and patterns of attachment: a critical risk factor? *Depress Res Treat* 2015; 2015: 105012.
23. Conde A, Figueiredo B, Bifulco A. Attachment style and psychological adjustment in couples. *Attach Hum Dev* 2011; 13: 271-91.
24. Feeney J, Alexander R, Noller P, Hohaus L. Attachment insecurity, depression, and the transition to parenthood. *Pers Relatsh* 2003; 10: 475-93.
25. Mazzeschi C, Pazzagli C, Radi G, Raspa V, Buratta L. Antecedents of maternal parenting stress: the role of attachment style, prenatal attachment, and dyadic adjustment in first-time mothers. *Front Psychol* 2015; 6: 1443.
26. Born L, Zinga D, Steiner M. Challenges in identifying and diagnosing postpartum disorders. *Prim Psychiatry* 2004; 11: 29-36.
27. Gale S, Harlow BL. Postpartum mood disorders: a review of clinical and epidemiological factors. *J Psychosom Obstet Gynaecol* 2003; 24: 257-66.
28. Riecher-Rössler A, Hofecker Fallahpour M. Postpartum depression: do we still need this diagnostic term? *Acta Psychiatr Scand Suppl* 2003; (418): 51-6.
29. Altshuler LL, Hendrick V, Cohen LS. Course of mood and anxiety disorders during pregnancy and the postpartum period. *J Clin Psychiatry* 1998; 59 (Suppl 2): 29-33.
30. Hatters Friedman S, Hrouda DR, Holden CE, Noffsinger SG, Resnick PJ. Filicide-suicide: common factors in parents who kill their children and themselves. *J Am Acad Psychiatry Law* 2005; 33: 496-504.
31. Aceti F, Aveni F, Baglioni V, et al. Perinatal and postpartum depression: from attachment to personality. A pilot study. *Journal of Psychopathology* 2012; 18: 328-34.
32. Meuti V, Marini I, Grillo A, et al. MMPI-2: cluster analysis of personality profiles in perinatal depression: preliminary evidence. *ScientificWorldJournal* 2014; 2014: 964210.

33. Kendler KS, Gatz M, Gardner CO, Pedersen NL. Personality and major depression: a Swedish longitudinal, population-based twin study. *Arch Gen Psychiatry* 2006; 63: 1113.
34. Podolska MZ, Bidzan M, Majkowicz M, Podolski J, Sipak-Szmigiel O, Ronin-Walknowska E. Personality traits assessed by the NEO Five-Factor Inventory (NEO-FFI) as part of the perinatal depression screening program. *Med Sci Monit* 2010; 16: PH77-81.
35. Kim THM, Connolly JA, Tamim H. The effect of social support around pregnancy on postpartum depression among Canadian teen mothers and adult mothers in the maternity experiences survey. *BMC Pregnancy Childbirth* 2014; 14: 162.
36. Podolska MZ, Majkowicz M, Sipak-Szmigiel O, Ronin-Walknowska E. Ways of coping in stressful situations and anxiety-state or anxiety-trait among women with symptoms of perinatal depression. *Ginekolog Pol* 2009; 80: 201-6.
37. First M, Spitzer R, Gibbon M, Janet B. Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition. (SCID-I/P). Biometrics. New York, NY: New York State Psychiatric Institute, 2002.
38. Fossati A, Borroni S, Marchione D, Maffei C. The Big Five Inventory (BFI). *Eur J Psychol Assess* 2011; 27: 50-8.
39. Goldberg L. The structure of Phenotypic Personality traits. *Am Psychol* 1993; 48: 26-34.
40. Srivastava S, John OP, Gosling SD, Potter J. Development of personality in early and middle adulthood: set like plaster or persistent change? *J Pers Soc Psychol* 2003; 84: 1041-53.
41. Martinotti G, Mandelli L, Di Nicola M, et al. Psychometric characteristic of the Italian version of the Temperament and Character Inventory-Revised, personality, psychopathology, and attachment styles. *Compr Psychiatry* 2008; 49: 514-22.
42. Roberts BW, Jackson JJ, Fayard JV, Edmonds G. Conscientiousness. In: Jearly M, Hoyle R (eds). *Handbook of individual differences in social behavior*. New York, NY: Guilford Press, 2009.
43. Graziano WG, Eisenberg NH. Agreeableness as a dimension of personality. In: *Handbook of personality*. San Diego, CA: Academic, 1999.
44. Meier BP, Robinson MD, Wilkowski BM. Turning the other cheek: agreeableness and the regulation of aggression-related primes. *Psychol Sci* 2006; 17: 136-42.
45. Cloninger C, Przybeck T, Svrakic D, Wetzel R. *The Temperament and Character Inventory (TCI): a guide to its development and use*. St. Louis, MO: Center for Psychology of Personality, Washington University, 1994.
46. Poustka L, Parzer P, Brunner R, Resch F. Basic symptoms, temperament and character in adolescent psychiatric disorders. *Psychopathology* 2007; 40: 321-8.
47. Jylhä P, Isometsä E. Temperament, character and symptoms of anxiety and depression in the general population. *Eur Psychiatry* 2006; 21: 389-95.
48. Josefsson A, Larsson C, Sydsjö G, Nylander P-O. Temperament and character in women with postpartum depression. *Arch Womens Ment Health* 2007; 10: 3-7.
49. Jones L, Scott J, Cooper C, et al. Cognitive style, personality and vulnerability to postnatal depression. *Br J Psychiatry* 2010; 196: 200-5.
50. Tian T, Li Y, Xie D, et al. Clinical features and risk factors for postpartum depression in a large cohort of Chinese women with recurrent major depressive disorder. *J Affect Disord* 2012; 136: 983-7.