Is consanguinity a relevant factor in psychosis? The case of Easter Island (RapaNui).

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Objectives: Make a review about consanguinity and mental illness, especially psychosis, and relate the information with the reality of Easter Island.

Background: A consanguineous marriage is defined as the union of a couple related as second cousins or closer. They represent 10.4% of the population. It has been described in isolated populations, like Easter Island. It is still possible to observe families of ancestral lineage, being striking the development of severe psychiatric illness in recent years.

Methodology: We collated studies found via searches on databases (PubMed, MedLine, ScienceDirect, Scielo), using relevant terms ("Rapanui", "Polynesia", "Psychosis", "Easer Island", "consanguinity", "endogamy"). We gather information about islanders who are consultants in the Psychiatric Institute in Santiago, Chile, between 2013-2018.

Results: A few studies confirm an association between consanguinity and mental disorders, with a higher risk of psychosis (Table 1). Endogamy in RapaNui was decreasing. In 2006, an analysis found a low level, suggesting strategy used to avoid marriage between close relatives. We found few epidemiological records and no information on outpatient care. In 2015, 3.3% hospitalizations were due to mental illness. There is high frequency of domestic violence and drug abuse. At the Psychiatric Institute, nineteen islanders were received (Table 2). Several native surnames in common were found.

Discussion: It is urgent to study the psychiatric illness in RapaNui and to carry out a study on consanguinity, considering that in some subpopulation it has been demonstrated that more distant genetic relationships may also be important.

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Table 1. Example of studies about inbreeding and mental illness.

Study design	Results	Publication
Cross-sectional study	Parental consanguinity was elevated among the patients with schizophrenia (41.3%) with a higher mean coefficient of inbreeding than in non-schizophrenic subjects (28.7%)	<i>Bener A, 2012, Abdulbari B, 2012</i>
Case report	Puerperal psychosis associated in three sisters.	<i>Craddock, 1994</i>
Case report	A consanguineous family affected by bipolar disorder associated with more aggressive episodes, early onset, and treatment relapse.	<i>Aadil M, 2017</i>
Case - control	Association with depression in South India, with odds ratio of 5.66	<i>Sathyanarayana Rao, T. 2009</i>
Case - control	In late onset cases of bipolar disorder, this was lower for offspring of consanguineous than unrelated marriages.	<i>Saadat M, 2012</i>
Review	Consanguinity associated with mental retardation in different studies.	<i>Matthew C, 2006</i>
Case – control	The estimated mean inbreeding coefficient (α) for cases of drug abuse(0.0179) was higher than that of the control group (0.0114).	<i>Mostafa S, 2010</i>

Table 2. Description of islanders who consulted to Psychiatric Institute in Santiago, Chile, between 2013-2018.

Subjet	Surnames	Age (years)	Gender	Diagnosis
1	A X	29	Male	Bipolar disorder
2	A A	24	Female	Personality disorder
3	A B	49	Female	Depressive episode
4	A X	27	Male	Personality disorder
5	C D	35	Male	Alcohol abuse
6	X E	35	Male	Bipolar disorder
7	X E	36	Male	Schizophrenia
8	X F	31	Male	Bipolar disorder
9	G X	29	Male	Schizophrenia
10	F G	37	Male	Schizophrenia
11	G H	45	Female	Personality disorder
12	X H	39	Female	Personality disorder
13	H B	22	Male	Schizophrenia
14	X J	30	Male	Schizophrenia
15	K X	27	Male	Bipolar disorder
16	L X	26	Female	Personality disorder
17	F G	20	Male	Bipolar disorder
18	H X	41	Male	Schizophrenia Drug abuse
19	I X	29	Male	Bipolar disorder

Note: The surnames were coded using letters. A-L are rapanui surnames, X is anv non-rapanui surname.