

Franz Josef Kallmann (1897-1965)

Franz Josef Kallmann studied the biological and genetic factors of psychological disorders in Germany and the United States in the twentieth century. His studies at the New York State Psychiatric Institute in New York City, New York, focused on the genetic factors that cause psychiatric disorders. Kallmann was one of the first to use twins to study how a mental disorder is passed on by comparing the occurrence of epilepsy and schizophrenia in both fraternal and identical twins. Kallmann helped develop and popularize the methodology of twin studies to examine the genetic component of psychiatric disorders and he showed a factor for the psychiatric disease schizophrenia.

Kallmann was born on 24 July 1897 in Silesia, Germany, which later became a part of Poland, to Marie Kallmann and Bruno Kallmann. His father was a surgeon and general physician. Kallmann studied at a gymnasium school where he learned Greek and Latin.

Kallmann studied medicine at the University of Breslau in Breslau, Germany, which later became part of Poland. Kallmann studied forensic medicine and wrote a thesis on deaths caused by accidental stab wounds. In 1919, Kallmann graduated from medical school. Breslau professor Alois Alzheimer, who discovered the neurological disease Alzheimer's, inspired Kallmann to pursue psychiatry. Following graduation, he spent several years working in private practice as a psychiatrist.

In 1922, Kallmann married Helen J. Burger, and the couple spent much of their time together. Burger assisted Kallmann with his research as his secretary, technical assistant, and accompanying him to visit families of mentally ill patients.

In 1925, Kallmann moved to Berlin, Germany, to further his studies in psychiatry. In Berlin, Kallmann worked with Karl Friedrich Bonhoeffer, chair of the department of Psychiatry and Neurology at Charité Hospital in Berlin, Germany. Bonhoeffer's studied symptomatic psychosis, a mental illness in which those afflicted mentally disconnect from reality. While working with Bonhoeffer, Kallman enrolled in a psychiatric training course at the Berlin Psychoanalytic Institute in Berlin. In 1929, Kallmann became the director of the neuro-pathological laboratories at two state hospitals, Berlin-Herzberge and Berlin-Wuhlgarten. In 1931, Kallmann earned a research fellowship at the Research Institute in Munich, Germany, later renamed the Max-Planck Institute for Psychiatry. He spent those years traveling between his clinical work in Berlin and research duties in Munich.

In 1935, at the start of World War II, Kallmann ceased publishing in Germany due to his Jewish heritage. Elliot S. Gershon, in a speech about Kallmann, stated that Kallmann's father was Jewish but converted to Christianity, and Kallmann did not identify as Jewish himself. However, the Nazi's in Germany considered him Jewish. Additionally, Kallmann disagreed with the way political leaders in Nazi Germany were utilizing genetics for purposes of eugenics and forced sterilizations. Instead, Kallmann suggested that genetics should be used in the relatively new field of heredity or genetic counseling. He argued that genetic counseling, in which patients who have a disorder that can be inherited to their children are advised about family planning, was important in public health work.

In 1936, Kallmann fled Nazi Germany to New York City, New York. Upon his arrival in the United States, Kallmann began working at the New York State Psychiatric Institute at Columbia University in New York City. While at the Psychiatric Institute, Kallmann established the Department of Medical Genetics.

In 1938, Kallmann published his book *The Genetics of Schizophrenia*. The book examines the occurrences of schizophrenia in families. Kallmann traced the family members of 1087 schizophrenic patients whose names he gathered from the archives of the Herzeberg Hospital in Berlin. He looked for multiple categories of family members including siblings, parents, children, cousins, aunts, and

uncles. He spent four years contacting the siblings, parents, children, cousins, aunts, and uncles of the patients to see if they also suffered from schizophrenia. He found that the closer the relative to the patient with schizophrenia, the higher the chance of that relative also having schizophrenia.

Kallmann's findings in family studies of schizophrenia led to him developing the twin family method. In 1943, Kallmann published his paper "The Twin Studies on Genetic Variations in Resistance to Tuberculosis" in which he explains how and why he developed the twin family method. In the twin family method, twins are used for studying inherited traits because they have near identical genomes, or genetic information, and often experience similar environmental factors because they are the same age and, unless they are separated, are raised in the same environments. Kallmann investigated both monozygotic and dizygotic twins for instances of tuberculosis. Monozygotic twins are twins that come from one egg, while dizygotic twins come from two eggs. He found that monozygotic twins developed the same diseases more often than did dizygotic twins. This result indicated that genetics affect the development of some diseases in addition to prenatal and postnatal environments.

In 1946, Kallmann published his paper "The Genetic Theory of Schizophrenia." He states that the best method for predicting the heritability of schizophrenia is the twin study method in conjunction with a regular sibling study. In his paper, Kallmann investigated the siblings of patients with schizophrenia to determine the likelihood that a family member will also have schizophrenia. Kallmann examined monozygotic twins, dizygotic twins of the same sex, dizygotic twins of opposite sex, full siblings, half-siblings, and step-siblings. Kallmann explained that the closer the genetic sibling relationship, the higher the chance that both siblings will develop schizophrenia. Monozygotic twins shared the most genetic information, followed by dizygotic twins of the same sex, dizygotic twins of opposite sex, then full siblings, half-siblings, and finally step-siblings, who share no genetic information. Kallmann also considered environmental factors and separated groups based on if the siblings lived together or separate and if they lived in different or similar environments.

Kallmann also utilized twin studies to examine the genetic nature of homosexuality. In 1952, Kallmann published a paper where he argued that there might be hereditary factors in homosexuality. In the paper, he theorizes that maturation tendencies in males and females is controlled by genetic factors and that these tendencies can influence a degree of intersexuality which might account for homosexuality.

In addition to his work on genetics and psychiatric diseases, Kallmann offered a genetic explanation for anosmic hypogonadism, a medical condition characterized by an impaired sense of smell and delayed puberty. Kallmann published a paper titled "The Genetic Aspects of Primary Eunuchoidism," where he explained the genetic factors associated with anosmic hypogonadism. The congenital endocrine disorder was later named after him and in the twenty-first century is known as Kallmann's syndrome.

Kallmann was a member of many professional societies and in 1952, he was elected the fourth president of the American Society of Human Genetics. In 1953, Kallmann published his book *Heredity in Health and Mental Disorder*, in which he detailed his longtime work with twin studies. In 1954, Kallmann became a full professor of psychiatry at the College of Physicians and Surgeons of Columbia University. Kallmann helped to organize the first International Congress in Human Genetics in 1956 in Copenhagen, Denmark, and then the second one in Rome, Italy, in 1961. That same year, Kallmann received gold medal awards from Salerno Medical School in Salerno, Italy and the Eastern Psychiatric Research Association in New York, US.

Kallmann died on 12 May 1965 in New York City. At the time of his death, Kallmann was still working as the Chief of Psychiatric Research at the New York State Psychiatric Institute and as a Professor Emeritus of Psychiatry at Columbia University. He was also the President of the American Psychopathological Association. In 1966, after his death, Kallmann's wife received the Stanley R. Dean Research Award on behalf of Kallmann for his contributions to schizophrenia research.

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