

Health and Social Consequences: Linkages between Parish Registers and Patient Records as a Source in Social Medical History

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Abstract

Venereal diseases in the Sundsvall area in Sweden are studied in this article. By using linkages between parish records and patient records it has been possible to find out what happened to a patient after the admission to a venereal ward. The linkage gives us enough information to form life and family biographies for these individuals. By investigating the life courses of 145 linked individuals it has been possible to give a closer presentation of the preliminary conclusions and problems of this research. The major problem has to do with their mobility. A life and family biography is truncated when the individual leaves the district of Sundsvall.

The individuals of the study were admitted to a venereal ward in the midst of their adult life. While carefully paying attention to the linked individuals' tendency to leave the Sundsvall area, we have studied their age distribution rates for certain events in their lives and reached a few preliminary conclusions about the sample group. Even among those who stayed in the district for quite a long while, the marriage rates were quite low. Some of these individuals had up to eight children, but the average fertility among the sample group seemed to be quite low. Because more than 60 percent of the children born within the sample group died before the age of 15, and a very high percentage of these died before their first birthday, seems to be a convincing proof that venereal disease had an important impact on the patients' lives. The article shows that linkages between patient records and parish registrars can help medical historians and historical demographers to understand the way in which disease and medical care affected peoples' lives in past time.

Keywords: medical social history, venereal disease, historical demography, social consequences, life and family biographies, Sweden

People that suffered from venereal disease in the nineteenth century were supposed to face a horrible fate. In the literature they mostly ended up insane and were hidden away as a disgrace to society and their families. The diseases were lethal in various ways and they were regarded as primarily affecting prostitutes and drunkards. However, they could also affect the middle class family. If the seductive woman of the streets caught the eye of the middle class man, this meant that he brought the sickness to his young and innocent wife. Much nineteenth-century literature and drama implies that this was the reason why there were children in bourgeois families who were pale

and in bad health. In this way, venereal disease became a threat to the children's health and to future society.

These prejudices surrounding venereal disease contain many different themes of the nineteenth century. Writing medical history about these diseases brings the researcher into several fields of interest. The story of syphilis and other venereal diseases involves cultural history, women's history, public health history, and historical demography. It also suggests comparative studies on the reaction to venereal disease in different countries. The story of venereal disease has been written for the USA, Britain, France, and Canada. Books by authors such as Allan M. Brandt (1987), Jay Casel (1987) and Richard Davenport-Hines (1990) have described society and its reactions to venereal disease. However, whether people could get help for venereal disease or not is still a debated topic. In the Scandinavian countries this topic has received very little attention. Using a large number of sources such as the parliamentary publications, medical journals, newspapers, and letters, we hope to be able to describe how Sweden handled these diseases.

The purpose of this article is twofold. It starts with a short history of venereal disease in Sweden. The computerized population registers at the Demographic Database in Umeå gives us a possibility to do unique research. Questions that have yet to be asked on venereal disease will be discussed. The major part of this essay explains how a medical historian can use the linkage between population registers and medical case journals. The article also includes a couple of case studies. Finally, this article will discuss some major problems in using these linkages. All the research in this article is still in a very early and experimental stage. The article deliberately poses more questions than answers.

Possibilities for medical care for venereal disease in Sweden

When syphilis appeared in Europe it took a very violent course and had a high mortality rate. However, in the 16th century, the dramatic symptoms of syphilis had decreased. Syphilis first appeared in Sweden at the end of the 16th century, when it was introduced here by Danish soldiers. In the beginning, syphilis did not affect a large number of people in Sweden. In the 1720s the prevalence of syphilis had increased and the Swedish government regarded syphilis and other venereal diseases as epidemic. Therefore, they started to take certain precautions to fight this threat to society. In Sweden, it was quite common for someone with syphilis to get some sort of medical treatment. In some cases it was, of course, more or less forced upon them.

Vicars were taught how to recognize the symptoms and they were required to keep a close watch on their parish. Doctors traveled around the country to inspect parishes, military regiments and sailors. In 1753, Sweden got its first hospital, the Serafimer hospital in Stockholm with eight beds. Several years later, in 1765, the Swedish government decided to establish so-called termed as "Länslasarett". Most of these institutions were started to fight syphilis and a large proportion of the patients had some sort of venereal disease. Until the middle of the eighteenth century, only poor houses and hospitals for the insane existed. This clearly shows how the Swedish government respected these diseases. They started a whole medical care system because of them (Thyreson 1991).

Even though if the authorities tried to stop the prevalence of syphilis, the disease continued to spread in the Swedish countryside. Its most common symptoms at this time were the symptoms of secondary syphilis, large sores on the body, on the legs, and in the face. Venereal disease caused a lot of fear and shame, so the sick evaded inspections. This was a big problem for the doctors and made it difficult for them to

stop the diseases. The large number of patients in the county hospitals also made medical treatment very expensive. Therefore, a public tax called "kurhusavgiften" was introduced in 1817. This meant that every adult man and woman had to pay a fee to their parish and this entitled them to free treatment for syphilis at their local hospital.

This poll tax made the Swedish health care system very different from systems in other countries. In England, France, and the USA, it was very difficult for people who suffered from syphilis to get treatment. Charles Rosenberg (1987) claims that several American hospitals refused to treat VD patients because the doctors thought that the sick were immoral. According to historians like Judith Walkowitz (1980), only prostitutes were treated for venereal disease in lock hospitals in England and Scotland. Conditions were quite similar in France. Guenther Risse has also shown that a large proportion of the syphilitic patients in Edinburgh consisted of sailors and soldiers. (1986)

Swedish medical history needs an outline of how authorities and doctors reacted to venereal disease. It appears that the large number of syphilitics brought on the start of Swedish hospitals and thus venereal disease made a large contribution to Swedish medical history. The patient records preserved from the Sundsvall hospital have been computerized, and with the computerized parish registers from the district of Sundsvall they provide us with a unique opportunity to study the consequences of venereal disease. Linkages between the two sources can form life and family biographies of sufferers from syphilis in nineteenth century Sundsvall.

Sundsvall is a town on the northern coastline of Sweden. In the second half of the nineteenth century, the town expanded rapidly and became the center of the world's largest sawmill district. The old agrarian society still existed in some of the outer parishes in the district, but close to the town the employment pattern changed dramatically. This meant that a new, extremely mobile social class developed and many young persons moved into Sundsvall or the surrounding sawmill parishes. Sundsvall had a young, fertile, and marriageable population. A previous study of the patient records from the venereal ward at the Sundsvall hospital has shown that the prevalence of sexually transmitted diseases increased during the rapid growth of the district. The patient records also show that many of the patients belonged to this young and fertile group that migrated to the city and became a part of its expansion.

The study will try to show what happened to them after hospitalization. The essay is mainly a methodological article on how we can use linkages to answer the questions just mentioned. The research that uses these linkages is conducted in three stages. The first stage is making a linkage. The linkages give us a large set of data on the patients from the ward which in itself forms life and family biographies. These biographies make it possible to study the life courses of the patients. This essay concentrates on the methodological problem on how to study these life courses as effectively as possible.

The study is based on 145 randomly picked linkages. These 145 individuals had at least once in their life been admitted to "kurhuset", the venereal ward at the Sundsvall hospital between 1844-1889. The final study includes about 700 linkages. Because of the lack of information about the patients' date and place of birth, the computer program has been able to link 700 records out of 4,347. Many of them were regarded as healthy by the doctors and were supposed to go back to their normal life, when they were discharged from the venereal ward. How long could they stay in the Sundsvall district? To what extent could they marry and have children?

By combining three levels, national, local, and individual, we hope to be able to show several aspects of the medical history of venereal disease in Sweden. Social and public health history and historical demography will be combined in this research. Writing medical history both from above and below will illustrate how authorities and individuals together shaped the history of venereal disease in Sweden.

Linkages in medical history

Making a linkage between two sources in this case means that each patient's record is joined with an identification number from the POPUM database at the Demographic Database (DDB) in Umeå. DDB has registered the church registers in several Swedish parishes. One of their major projects has been the registration of the town of Sundsvall and 12 surrounding parishes. The information from the patient record will thus be linked to a large set of information from the church register which will form life and family biographies for these individuals. We will be able to follow them from the time of their birth or migration into the area to either the time of death or migration out of the Sundsvall district. Most of the linkages end when the computer processed church registers stop in 1895.

A simple example of how these linkages can tell us something about a patient's subsequent life is the little boy Gustav Byberg. Born in 1874, he made four visits to the venereal ward between 1878 and 1880. In POPUM we found a boy named Gustav Byberg for whom gender, year of birth, and residence complied. Thanks to the linkage we find that Gustav continued to live in Sundsvall until the age of 18. His life biography shows several signs of how his life continued. The church register never mentions that Gustav supported himself in any way. His mother Ingeborg worked as a maid until she married in 1871. Gustav's father died from pulmonary tuberculosis in 1876, but Ingeborg had five illegitimate children after her husband's death. While she was a widow, the vicar still never registered a profession to her name. Two of her children had died when the family migrated from the Sundsvall district in 1892. Gustav could continue to live with his family. He leaves the study at a very young age and therefore had not yet formed a family of his own.

The quantitative aspect of this particular study will be much facilitated thanks to DDB at Umeå University. The majority of the linkages between the patient record and the parish registers has been made by Anders Brändström. He used them as part of his mortality research, investigating whether the Sundsvall hospital really was a "gateway to death" or not. His conclusions were drawn from all the 20,000 patients that were admitted to the hospital between 1844–1900. In this study, the linkages have been used to investigate if the patients left the Sundsvall district or when they died there.

Brändström's statistical survival analysis found that venereal patients lived a lot longer than other patients and equally long as persons who were never admitted to the hospital. However, this leaves many questions unanswered as to whether the syphilitics could live a normal social life; did they marry, did they have children, could they stay on at the same place after hospitalization and could they hold a job. These are the questions that I have set out to answer in my forthcoming thesis.

First and foremost, we can easily ascertain what proportion of these people married, had children, held a job etc. Secondly, we can also study how these events occurred and how they interacted with each other and the hospitalization. Were their children born before marriage? Were they married before or after hospitalization? Were there any disparities between social groups? Poor, unmarried women, hospitalized in the venereal ward, should have had more difficulties with settling in society than a farmer's wife or the farmer himself. By comparing their life and family biographies, the social differences concerning health and disease become clearer.

Jocelyn Cornwell states the importance of family for the recovery of sick people in her book *Hard-earned lives*. Here she has interviewed people living in East London to find out how they feel about health and medicine. Her writings make it very clear that people were, and still are, very dependent on having a family when they return from the hospital. It was also very important for them to be able to earn a living and to have a place to live. The stability of their entire social network seems to be of

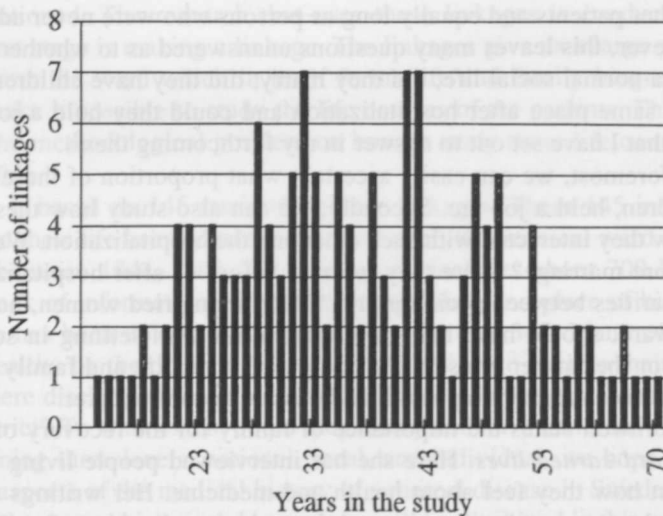
great importance. The linkages give us an opportunity to look at what kind of network these syphilitics had when they returned home from the ward. Gustav Byberg had a family consisting of a mother and several siblings and half siblings. His family lived in Sundsvall for 14 years after his last visit to the ward. The linkage shows us that he lost his father at a very early age and that his mother did not remarry. In spite of this he still had a social network to grow up in and to migrate with.

To summarize, linkages between the two sources form a very useful tool not only in historical demography, where it has been used for a very long time in studies of family and migration. Linkages can also be used in medical history and have been used to describe the mortality in hospitals in northern Sweden. In this study linkages will be used to describe the life courses and stigmatization of people who suffered from a venereal disease at least once in their life.

Different time lengths in the linkages

Gustav Byberg's life and family biography only covered 19 years, from the time of his birth to the year when he migrated out of the district. To document the rest of his life would mean working by hand in the original sources. This would require considerably more effort than the kind of research that the computer enables me to do. In this study we have chosen to remain working on the computer, and thus truncate the life and family biography of Gustav Byberg at the time when he leaves the Sundsvall district. This is the case with all 145 biographies in this study. Undoubtedly every life and family biography is highly dependent on how long the person stays within the reach of this study. The time of observation for the linked individuals varies quite dramatically, as shown in Figure 1. We can follow some of the individuals for most of their lives, and others we can only follow for a few decades.

Figure 1. Time of observation for linked individuals admitted once to the venereal ward in the Sundsvall hospital 1844–1889



Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå)

The results might be affected by further research into the linkages, following the patients into their continued life in the other parishes outside the Sundsvall district. We lose sight of them in the middle of their active life, and it is very likely that changes continued to take place in their life after their outmigration from the district. At the moment we can only speculate as to whether this makes too large a difference in the study. Further research with the data retrieval and the comparative cohort will show more on this issue. In the future we will be able to discuss this bias in the study further.

Only a few observations end after 20 years and some of them last up to 70 years. The average time of an observation is 39 years. Figure 1 shows that the majority of the linkages cover enough years in the individual's life to include their marriage and childbearing. What the figure does not show is gender differences in this matter and to which extent these observations cover the time before or after the last hospitalization at the VD ward. The average observation time was slightly shorter for women. The observations last for an average of 38 years for men and 35 years for women.

Skipper Johan Bergström, who was admitted to the venereal ward in Sundsvall in 1855, is one example of a linkage with a longer observation time. Johan can be followed for 48 years, which makes it possible to tell considerably more about his life and family. He was the third son in the marriage of Johan and Catarina Persson. His parents were farmers in Alnö, a parish close to Sundsvall. In 1837, at the age of 17, Johan took to the sea for the first time. At 22 he married Sofia and in 1843 their first child was born. In 1845 Johan becomes a skipper and his family grows. A daughter Catarina was born in 1845, Johan in 1848, and Olivia in 1849. Johan dies from whooping cough at a very young age. A second son, also called Johan, was born in 1852.

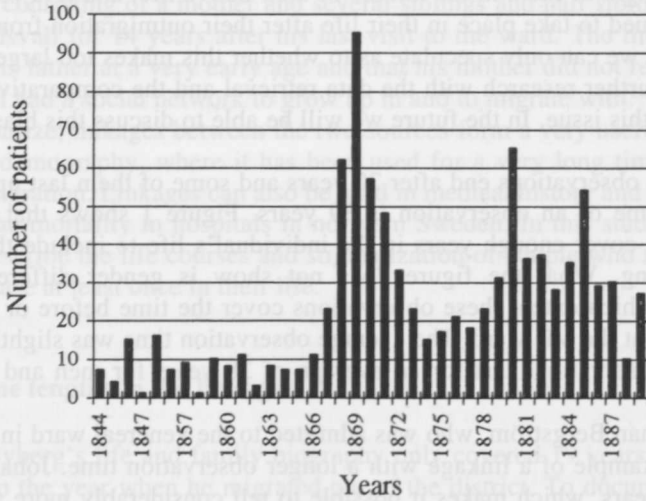
It is in 1855, at the age of 35, that skipper Johan Bergström was admitted to the venereal ward for sores in the throat. He was treated for 31 days. Six months later, his wife was also treated for venereal disease. Sofia remained in the hospital for 96 days. A surviving child was born in 1855.

Many of the life and family biographies cover the lives of the individuals before the last visit to the venereal ward. This makes Gustav Byberg an exception in my study, as he was admitted as a child. The average age for the patients at the time of their admission was 25 for the men and 24 for the women. The average length of an observation after the last hospitalization is 12 years.

The disparity between observation time before and after the admission is explained in Figure 2. Most of the admissions to the ward took place between 1870 and 1889. The database that holds the parish registers of the Sundsvall district ends in 1895. Because of this, there is only a certain number of years left when the individuals in the study could have been discharged as patients at the ward. However, the study will still include the most active years of their lives.

Contrary to many of the conceptions of VD, the couple's life continued. Their sixth child was born in 1855 and in 1857 they temporarily moved to another parish, Hässjö. During their stay there they lost two children. In 1857, a new-born daughter died, and in 1858 their oldest daughter Sara died from stroke. Maybe because of this they moved back to Alnö, the home of Johan's parents. Here they had their last child, Axel, in 1862. Five years later, in 1867, the family is hit hard by tragedy. In January, Johan's mother dies, and in May Johan's brother also dies. In November of the same year, Johan's father dies as well. As Johan's youngest brother drowned in 1852, this means that in one year almost his entire family was wiped out. In 1868, his last brother's wife also dies, and leaving several children motherless. The two remaining brothers lives part as Johan takes a large part of his family to North America.

Figure 2. Time of the patient's visits to the venereal ward in the Sundsvall hospital 1844–1889



Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå).

Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå)

The life and family biography of Johan Bergström tell us that his social network breaks up 12 years after he was discharged from the venereal ward. According to the church register their oldest son Johan seems already to have been in North America, and in 1867 his sister Catarina leaves Sweden. Another daughter Olivia leaves her family to move to Stockholm. On the 12th of June 1868 the remainder of Johan Bergström's family emigrates: Johan, his wife, two daughters of 13 and 10 years of age and their youngest son Axel, aged 6. However it was not until 1876 that their son Johan seems to leave Sundsvall for good.

We can follow some of the syphilitics from the time of their birth. Because of this we will be able to study their parents and what kind of childhood these individuals had. Most of the linked individuals were born in the first half of the nineteenth century. In its widest definition, this study can investigate life histories of individuals who lived between 1820–1890. These are the biographies that lasted for 70 years, as shown in Figure 1. However, not many of the biographies lasted this long, and not many of the individuals can be studied to the time of their death. This prohibits studies of their mortality and causes of death. Current medical experience knows for a fact that the mortality rate from syphilis is quite low. About 10 percent of those who contract a syphilis infection and do not seek treatment, reach the tertiary stages of the disease and ultimately die from it. The biographies of these individuals, however, let us study their fertility and also the infant mortality rate within their families.

The stories of Gustav and Johan were quite different from each other, most of all because we do not know what happened to Gustav when he grew up. The life of skipper Johan Bergström seemed to continue uninterrupted by the fact that he and his wife were both admitted to the ward. However these stories are only about a few linked syphilitics. The rest of the essay will try to answer questions about a larger number of linked individuals. We will try to illustrate who they were, where they came from, and to some extent what happened to them after their discharge.

The other side of the story

Reading through the patient records from the venereal ward reveals many tragic stories and painful experiences. The stories so far have been fairly positive ones. They have not illustrated all the dimensions of being admitted to the ward. The patients at the ward suffered from secondary syphilis. They suffered from fevers, aches and many of them had several sores on different parts of their bodies. Additional diseases like tuberculosis were not uncommon. The patients spent a long time in painful mercury treatment. The medicine was distributed as pills or ointments, and had several side effects. During the first two decades of the study they spent an average of two months in the ward. This became significantly shorter in the 1880s, when the average treatment was about one month. During the entire period, from 1844–1889, mercury in different proportions was the most common treatment for these patients. The doctors could not state whether gonorrhoea patients were really free from the disease until the very first years of the 1900s. Syphilis, even more common on the ward, could not be bacteriologically diagnosed until much later. Because of their limited medical knowledge the doctors considered most of their patients healthy when they discharged them.

The life of young Edla Törnqvist shows a different picture of what life could be like for a young woman before and after admission to the ward. Edla Törnqvist was born in Östersund in 1845. At the age of 20, Edla moved to Sundsvall. She was unmarried and worked as a maid and seamstress, and in 1867 she gave birth to a little girl, Ida. On the 14 of January 1869, Ida died, and on the 23 November 1869, Edla was admitted to the ward. She suffered from large venereal sores on her back. These are symptoms of at least secondary syphilis. She must have had the disease for quite some time to develop such symptoms. Ninety days later Edla was discharged from the ward. We know from earlier research made by Tommie Lundqvist (1982) and Judith Walkowitz (1980) that young women often did not manage to support themselves especially in areas where industry mostly employed men. This was the case in the sawmill district of Sundsvall. It would be likely therefore that Edla spent some time as some kind of prostitute.

Eight months later Edla comes back to the ward, and stays there for another three months. She is discharged in January. The year is now 1871, and in May Edla gives birth to her second child Carl. In September she took the child to the doctor and Carl is diagnosed as having secondary syphilis. It is also decided that the mother is to blame for the child's disease. Edla's son was discharged in December, but the child died in February of 1872. In 1875, Edla left Sundsvall and moved to Stockholm. She did not have a family and was without the kind of network that Gustav and Johan had when they came back from the ward over a period of two years. Edla and her child had spent nine months on the ward. Her syphilis had had great consequences for her life. We have studied three lives that to different extents were affected by the fact that they were admitted to the venereal ward in Sundsvall during some time in their life. The three lives were very different and we will look further into this.

Many of the patient records are difficult to link to the parish registers because 54 percent of the patients told the doctor that they lived somewhere outside of the Sundsvall district. Looking at the birthplaces of those patients who stated that they lived in the district, it seems like a majority of them had migrated there. Table 1 shows that 61 percent of the linkages in this pre-study were born outside of the district. Robert O. Ostergren's research shows that a large amount of the workers in the sawmill and foundry parishes in the Sundsvall district were men who had migrated there. He could also show that marriages did not take place between men who had moved there and women that were born in the parish. Those who had migrated into the parish married each other and the men and women that were born there married each other.

The table also shows that among those who actually were born in the district, the majority were born in the city. This creates more questions on how people in the countryside actually reacted to venereal disease. If they did get syphilis and gonorrhoea, were they more reluctant to seek help for their disease? Is this a sign that the stigmatization struck harder among the farmers? Among the few cases of tertiary syphilis, when the patients actually died it was more common that the patients came from the countryside. Further research might shed more light on this matter.

To give a preliminary look at the life courses of these individuals, we have chosen to study their age distribution. Among those life and family biographies that include a marriage and a birth of a first child, we have studied the age distribution of these events. Table 2 illustrates the evident fact that venereal disease was something that happened to people at a young age. Thus, the figure shows that the study will include individuals in the most productive time of their life. Most of the linked patients were discharged for the last time between the ages of 20 and 40. Many of the syphilitics married when they were between 20 and 30 years old.

The figures also show that there were few teenage mothers among the women who suffered from venereal disease. They did not give birth to their first child until they were in their twenties. It is also of great importance to study how old the individuals were when the observations end. Sixteen percent of the linkages in this pre study can be studied until they are older than 50. Approximately 70 percent of the linkages can be followed until 40 years of age. This means that we will be able to study most of the women's childbearing age and hopefully also the health of the women who married men who had been admitted to the ward.

Table 1. Place of birth for linked individuals admitted once to the venereal ward at Sundsvall hospital

Parish within the Sundsvall district	N	%
Alnö	5	4
Attmar	3	2
Indal	2	1
Njurunda	12	8
Selånger	5	3
Skön	4	3
Sundsvall	25	17
Tuna	1	1
Places outside the district	88	61

Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå)

Table 2. Age distribution by percentage among linked individuals, at the time of last discharge, marriage, birth of the first child (per woman), and last observation.

Age groups	Last discharge	Marriage	Birth of first child	Last observation
0-5 years	5	0	0	0
5-10 years	0	0	0	1
10-15 years	4	1	0	2
15-20 years	15	3	7	3
20-30 years	45	59	76	26
30-40 years	23	33	17	26
40-50 years	7	5	0	26
More than 50 years	1	0	0	16

Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå)

The impossibility of studying the mortality patterns of the linked individuals becomes evident in Table 2. Either they move out of the district or they remain alive when the registration ends. Considering the conclusions drawn by Anders Brändström's research, we know that they lived longer than the other patient groups. This tentative investigation of the linkages shows that few of the syphilitics died during the time covered by my investigation. Only 30 observations out of 145 ends with a date of death. The admission to the venereal ward was something that happened to them in their most active time of life. This makes it even more interesting to study them and to establish whether these individuals could form a normal social network. Many of them might not have had a family when they were admitted to the ward.

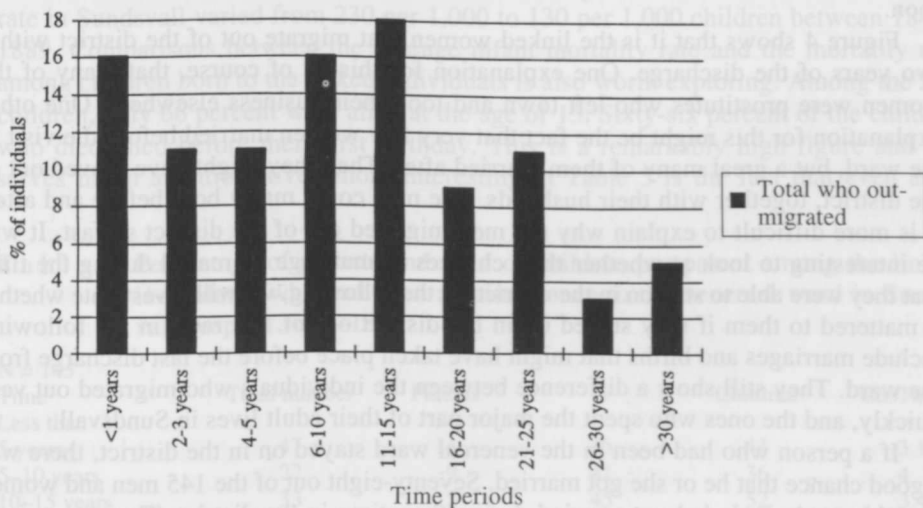
The problem of different time lengths in the linkages

The three life and family biographies that we have illustrated show very clearly the problem of different time lengths in the linkages. We cannot expect to solve this problem in this article, but we can show its consequences. Here we have only looked at two aspects of the life and family biographies. This article will study the syphilitics chances to marry and to form a family.

In the following, the life and family biographies have been categorized in groups depending on how long they remained in the district after the last discharge from the ward. As mentioned before, the average time for an observation after the last discharge was 12 years. This is clearly seen in Figure 3, as the time period 11–15 years shows 18 percent of the entire group.

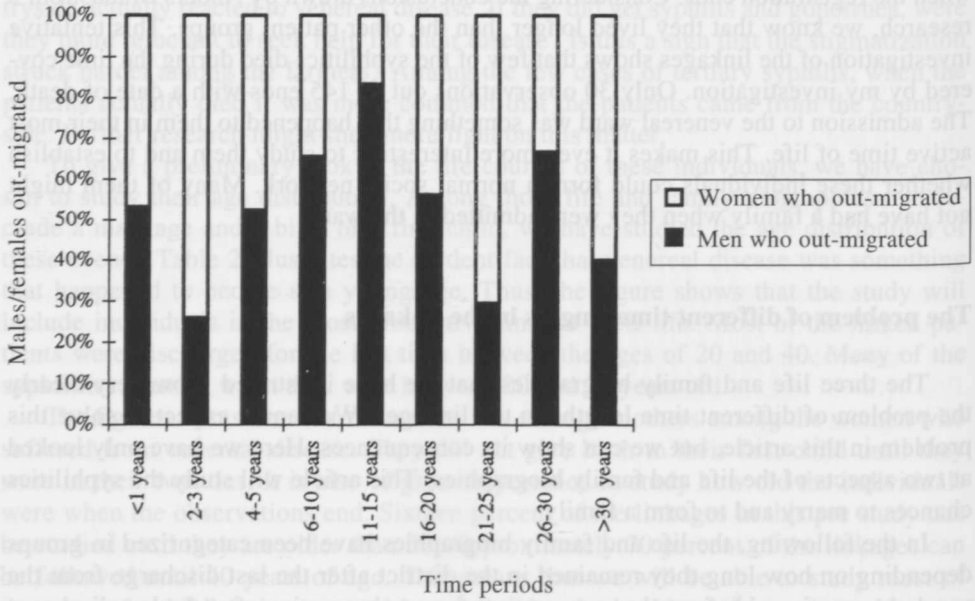
In Figure 3 we have divided the linkages in different time categories, depending on how long the patients stayed in the district after the last discharge. One category stayed in the district, and thus in the study, for less than one year after the discharge. The first category then migrates out of the district, and does not return. Thirty-nine percent of the linkages migrate out of the district within the first five years after the

Figure 3. Total outmigration after the last discharge from the venereal ward at the Sundsvall hospital by percentage and time periods



Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå).

Figure 4. Gender-divided outmigration after the last discharge from the venereal ward in Sundsvall by percentage and in time periods.



Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå).

last discharge. This is a fact that will be worth looking into much closer. When 15 years has passed from the last discharge, 73 percent of the individuals studied have left the district. Only 5 percent stay on in the district for more than 30 years.

If we study the problem with different lengths of time in the linkages from a gender-oriented perspective, certain new facts appear. Among the patients that migrated out of the district very soon after discharge, the gender division is quite even. The small cohort will not show a clear pattern of which individuals leave the study this soon.

Figure 4 shows that it is the linked women that migrate out of the district within two years of the discharge. One explanation for this is, of course, that many of the women were prostitutes who left town and took their business elsewhere. One other explanation for this might be the fact that very few women married before the visit to the ward, but a great many of them married after. Then they might have moved out of the district, together with their husbands. The men could marry both before and after. It is more difficult to explain why the men migrated out of the district so fast. It will be interesting to look at whether their chances of marriage increased during the time that they were able to stay on in the district. In the following, we will investigate whether it mattered to them if they stayed on in the district or not. All rates in the following include marriages and births that might have taken place before the last discharge from the ward. They still show a difference between the individuals who migrated out very quickly, and the ones who spent the major part of their adult lives in Sundsvall.

If a person who had been in the venereal ward stayed on in the district, there was a good chance that he or she got married. Seventy-eight out of the 145 men and women that this study included got married during their time in the district. That amounts to 54 percent of the entire group. Sixty-six percent of the individuals who stayed on in the district for more than 15 years got married during the period they were included

Table 3. Marriage rates among linked individuals depending on their time of observation after their last hospitalization at the venereal ward of Sundsvall hospital

Period	N	Married	%
Less than 5 years	39	16	41
5-10 years	22	13	59
10-15 years	33	21	63
More than 15 years	42	28	66

Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå).

in the study. It is only in the very mobile group that moved out of the district within five years of the last visit to the venereal ward that the amount of unmarried people was larger than the group of married people. Only 41 percent of those were married. Still, if one considers the previous historical research on family and marriage in former times, these figures might seem quite low. We know that a marriage partner was almost necessary for survival in nineteenth century society. Maybe a visit to the ward did prevent them from marriage? These are questions that need to be further investigated.

Did the duration of their stay in the district affect their ability to have children? Table 5 looks more closely at how many of the linked individuals could form a family in the sense that they had children. This means that this table includes both mothers and fathers who had been admitted once to the venereal ward. Table 5 shows that 14 of the 39 individuals who left the investigation less than five years after the last discharge from the ward have become the parents of 44 children during the period they are included in the study. Of the remaining 97 individuals, 49 parents had 204 children during the entire study. Among these 49 parents, only 25 stayed on in the study for more than 15 years. The child per parent ratio increases in the group that stays in the study for more than 15 years, which is, of course, to be expected.

According to Sören Edvinsson's book *Den osunda staden* (1992), the infant mortality rate increased in Sundsvall by the time of the start of the investigation. In the 1830s the situation for the infants in Sundsvall, as in other Swedish cities, worsened. It remained that way until the 1880s when mortality decreased. The infant mortality rate in Sundsvall varied from 230 per 1,000 to 130 per 1,000 children between 1840-1889. Comparisons between the average infant mortality rate and the mortality rate among children born to the linked individuals is also worth exploring. Among the 264 children, only 66 percent were alive at the age of 15. Sixty-six percent of the children who died, died before their first birthday. This is a remarkably high figure and deserves much attention. Even more interesting in Table 5 is the fact that even after

Table 4. Percentage of parents and ratio of children per parent among the linked individuals who had been admitted once to the venereal ward in Sundsvall hospital 1844-1889

Time	Total number	Parents	%	Children	Ch./Parent
Less than 5 years	47	14	36	44	3.1
5-10 years	22	9	41	36	4
10-15 years	33	15	45	52	3.4
More than 15 years	42	25	60	116	4.6

Source: Linkages between patient records and church registers for the Sundsvall district (DDB; Umeå).

15 years in the district, less than half of the linked individuals had children, although we know that 63 percent of them married before the study loses sight of them.

Conclusions

This article has shown that linkages between patient records and parish registers can be a useful source in medical history. Because of the unique material at DDB in Umeå, this research can be quantified to concern a large number of individuals who suffered from a certain disease. Depending on the mobility of the linked individuals, several facts of their lives can be studied. The marriage rates among these individuals increased if they stayed on longer in the district, which of course should be expected. But the rates still stayed rather low. Even the fertility rates were quite low, and the infant mortality rate was very high in this group. All these facts show that much more research on this question should be made, and that the material could be significant. Further research might be able to answer questions on family formation and marriages among sufferers of syphilis and other venereal disease.

In future research, the author hopes to answer questions on how a social network changed the situation for these persons, and if the situation was different in the country than in the city. Another interesting issue to look into would be whether the consequences of health were different for men and women.

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