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Pajalic, Z., Pajalic, O., Saplacan, D. (2019). Women's education and profession midwifery in Nordic countries. Journal of Health Sciences, 9(3): 127-135. http://dx.doi.org/10.17532/jhsci.2019.820

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Journal of Health Sciences

REVIEW ARTICLE Open Access

Women's education and profession midwifery in Nordic countries

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ABSTRACT

Introduction: Help at birth is one of the historically oldest volunteer supports that a woman has offered to another woman. One of the reasons for high maternal and infant mortality was identified as a lack of basic medical knowledge among the woman who helped during birth, and this required immediate action to secure the survival of nations. When the Church and government made demands for education and professional license, the voluntary help at birth transformed into an educated and paid profession for women. The study aimed to describe the evolution of women's education and the midwifery profession in Nordic countries from the 1600s until today.

Methods: Historical and contemporary documents, research and grey literature, are drawn together to provide a historical description of the midwifery professional development and education in Nordic countries.

Results: In the Nordic countries, governments from the 1600s had significant problems with high maternal and infant mortality. Most vulnerable were unmarried women and their children. To change the trend, northern countries had been inspired by France, Holland, England, and Germany, which had introduced education and a professional license for midwives. The targeted and systematic investment in midwifery education, followed by industrialization and welfare development in Nordic countries, has resulted in one of the highest survival rates for mothers and infants in the world today. In parallel with this, it has created the first female paid profession in history. Today, the midwifery education is at the university level in all Nordic countries, and the certified midwife is responsible for pre- and post-natal care and normal birth. In Sweden, Norway, and Iceland, the midwife's responsibility also includes contraception counseling and prescription of drugs for birth control purposes.

Conclusions: The education and professional licenses have contributed to a progressively improved care of birth women and infants. The professional and licensed midwife is positioned in society as an essential player in the current development of pre- and post-natal care. Furthermore, the graduated and licensed midwife positioned herself as the first paid professional female profession in modern history.

Key words: Education; history; professional license; midwife; Nordic countries

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Submitted: 21 October 2019/Accepted: 30 November 2019

DOI: https://doi.org/10.17532/jhsci.2019.820

INTRODUCTION

Nordic countries which are relatively homogeneous in cultural and social terms (1-3) have from a global level the lowest infant mortality, 5/1000 live births (1,2,4-7). This level is among others, achieved

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through long-term investments in high-quality maternity care through the high quality of midwifery education (8,9). For instance, Sweden is a foremost pioneer in the promotion of better infant care (7,10). Educated midwives in Denmark and Sweden had responsibility for infant health, maternal health, hygiene, and breastfeeding from the late 19th century (11). The midwives worked close to the woman and could focus on maternal education. Those responsibility areas put light on the midwife as a promoter of attitudes and behavioral changes especially in areas with high infant mortality.

The need for review and reform of midwife's education and her social role in Nordic countries came already in the 1700 century mainly from inspired by France, England, Holland, and Germany (6). In these European countries, required education with the oblique practice of midwifery and a final degree had been introduced by the commission, which consisted of experienced doctors and midwives. After the reformation and the introduction of ecclesiastical laws, the first laws were also introduced that have laid the foundation for today's midwifery education in Nordic countries (7). The Lutheran Church which was closely linked to the state had the obligation of registering births, stillbirths, maternal mortality, causes of death and educating people, in particular, midwives (emergency baptism in case of stillbirth and absence of a priest, church laws, and birth/stillbirth registration). In this way, the church built up accurate and comprehensive information that is also used today to trace information back in time linked to infant and age-specific mortality data (12).

Further, the church proclaimed basic requirements for the personality of the woman who wanted to practice midwifery such as, that the aspirant midwife should be honest, religious, have good knowledge within midwifery and be prepared to offer care/services to both the poor and the rich birth-giving woman. Legal regulation of midwifery created a secure connection between educated midwives and the government, who was the head of the church. The government had the church as its extended arm to have oversight of births and at the same time oversight over illegal abortions or infanticide. The laws of the Government and the Church were the basis for the design of the midwife education and areas of responsibility for midwives. After finished training, the midwives get a professional license and the right to practice the profession. The midwife education has become an essential milestone in the creation of a formal profession of the midwife in Nordic countries (5). To protect women from quackery and the newly created midwifery education a few decades later, it was criminalized to practice midwifery without a valid professional license (12).

The first educational book focusing on midwifery was published in Strasbourg and Hagenau in 1513 in Germany by Eucharius Rösslin (13) with the original title "Der Schwanngeren Frawen [schwangeren Frauen] und Hebammen Rosengarten" (Rosegarden for Pregnant Women and Midwives). France was the leading country with a focus on education in childbirth art, and the name of the midwife for the French royal family was Marie Louise Bourgeois Boursier. Bourgeois Boursier produced between 1609 and 1634 educational literature focusing on various observations regarding sterility, miscarriage, fertility, childbirth, and women's and children's diseases. Midwife Justine Siegemundin published in 1690 an educational book with the title in German "Die Kgl. Preußische und Chur-Brandenburgische Hof-Wehemutter" presented in the form of didactic questions and answers focusing on various observations, processes, and actions during childbirth and the postpartum period. The book was a symbol of a new professional identity based on education. The fact that midwifery was a paid profession also testifies to the story of the German official midwife of the royal Catarina Wentins (1637-1707) with a salary of about 800 silver coins including paid accommodation, wood, meat, salt, and wine from the Rhine, and compared to a doctor's salary which was at that time about 300 silver coins. Högberg et al. (2004) emphasized the importance of the Swedish Lutheran Church for collecting data on residents already from the 1600s; however, this was only on individuals from 5 to 6 years old. From the 1800s, data on all individuals were registered. The church's registers gave good insight into how maternity care was developed over time.

Furthermore, a good alliance and close cooperation between the midwives and the doctors were highlighted as a success factor in reducing maternal mortality (6,11). Depending on the large geographical

areas of sparsely populated countries, all births took place at home. The introduction of antiseptic routines during childbirth gave an immediate positive effect on women's survival and reduction of postpartum infections (14-18). With this article, we aimed to describe the evolution of women's education and midwifery profession in Nordic countries from the 1600s until today.

METHODS

To answer the purpose of the study, relevant literature has been searched in the following sources: ORIA (Oslo Metropolitan University Library), Google Scholar, DiVA, PROSPERO, PubMed, historical and contemporary documents, research, web pages, and grey literature. No time limit for publications was specified, and search terms were: History, midwife, midwifery, education, Nordic countries, and the author's name. Sources written in English, Swedish, Norwegian, and Danish were included in the study. Finally, there were 38 sources found and validated to be included in the compilation of results presented country by countries: Sweden, Denmark, Norway, Iceland, and Finland.

RESULTS

Midwifery profession and education in Sweden

Already in 1571, the Lutheran church extended the state's arm and would see to it that the state's laws and regulations were followed (14,19). During 1663, the profession of physician's named with government approval of Collegium Medicum (today The National Board of Health and Welfare) legalized control of midwives, the so-called godly and honest women (14). The requirement for an aspiring midwife was that she should be a good and honest woman, married or widowed, and experienced mother. In 1686, a church law made it possible for the midwife to carry out emergency baptism in case of threatening stillbirth or death because the priest as a man was not allowed to come into rooms where childbirth has taken place. Same year doctors received control and supervision over midwifery.

Aspirants had to learn with experienced midwives in a total of a 4 years long period, they undergo a graduation degree in anatomy in front of city physicians (14,15). The degree led to a professional title and license as a midwife. A few years later in 1697, the first training literate was published for midwives with the title "The well trained Swedish midwife," written by the father of Swedish obstetrics, physician Hoorn (20). In 1700, it was decided that only married women can be a midwife and the district choose who could obtain a grant for education. In 1711, the decree by Collegium Medicum for the professional license of midwives came out. That meant that the midwives aspirants had to undergo a 2 years training period with an experienced midwife, to be examined by Collegium Medicum, and give a Vow of the Midwives to the Magistrate. In the first midwifery regulation from 1711, additional requirements for a midwife aspirant were stated such as that the midwives personal character should have acceptable complexion without visible body malformations, be religious, responsible, quiet, honest, clear-headed, and peace-loving. In 1712, the first 18 midwives were graduated in Stockholm. In 1715, a textbook for midwifery training "Sphira and Pua" (21) was published. The year 1723 The Swedish Royal Majesty approved midwifery education and in the year 1750, the requirements for the districts to hire trained and graduated midwife were set. This injunction was first implemented nationally after 1908 when the Swedish parliament decided that each municipality was obliged to hire examined midwifes. The regulations were followed under 1919 with a decree that every district was required to employ a professional licensed midwife. In 1756, the first book "Barnmorskelära," written by midwife Hellena Malheim (14), was published. The year 1757, a proposal for a national training program for midwives was established, and in 1777 federal regulations for midwifery that became the first step to confidentiality demands on the midwife were introduced (19).

First, in 1856, the law came into force, prohibiting the midwife from asking for a name of the child's father. This was based on concerns about high infant death and vulnerability to unmarried women so that they could receive secret midwife assistance. During 1770 several maternity clinics with a maternity ward opened in Gothenburg, Malmö, and Lund were opened. The private childcare home Pro Patria (22)

and the general children's home in Stockholm were opened between 1774 and 1775. In 1775, the first professor of childbirth and obstetrics who taught for both doctors and midwives were appointed. Midwifery education was established in 1778 in Lund, 1782 in Gothenburg, 1819 in Gotland, and 1865 in Stockholm. At the beginning of 1800, the education was extended to 6 months and midwife becomes an autonomous profession. Assistant doctors and experienced midwives also were responsible for education in midwifery (14). It took a few years from the establishment to get the midwife education organized and structured. Thus, structured midwifery education started the year 1810.

Lack of doctors led to new regulations for the extended training program of licensed midwives to use forceps, sharp hocks, and perforators, manual removal of placenta, and extraction in breech presentation. Under 1829 a manual for midwives and guide to instrumental obstetrics was published. During the same year, the midwife is also licensed to use sharp instruments if doctors are not available, but the right was reduced in 1919 to using forceps. Midwife Anna Svensdotter was the first Swedish midwife who used forceps. Furthermore, midwives received a unique right to use advanced medical instruments from an international perspective if physicians were not present during complicated labors. In 1870, antiseptic techniques were introduced on general city hospitals and some years later 1881 in rural districts by the midwives. Introduction of antiseptic routines, by the recommendation of the major contributor to health Dr. Ignaz Philipp Semmelweis (23), reduced infant mortality between 1877 and 1878 from 4.2% to 0.32% (15-18). During the year 1879, the law with a focus on midwives personal hygiene came into force. In 1907, the length of training for midwives increased to 9 months in general labor and 3 months of teaching instruments, and in 1921 the education was extended to 2 years (24,25).

In 1919, midwifery regulations were completed with maternity care, and in 1938, pregnant women had the right to free maternity care, childbirth, and childbirth care. In 1945, the midwife got the right to give nitrous oxide. In 1953, it was stipulated that aspirants should have a nursing education completed before they could attend the midwifery education. Milton (26) describes the period between 1920 and 1950 as the most intense period in the development of the midwife profession and how it looks today. Historically, the midwifery profession was established in Sweden before 1920, but industrialization, social development, World Wars, and modernization have greatly influenced the orientation and the midwife's professional position. Falling natality, lack of doctors, as well as wise and long-term cooperation with the medical profession resulted in a good professional position. The national midwife union-management was strong and united its members who contributed to positioning the midwife profession on the political agenda.

Childbirth and maternity care became central for inter-World wars and post-World wars political agenda and ideology. The political winds were turned at public welfare, and that everyone has an equal right to safe and high-quality care. High-quality education, continuing education for graduated midwives contributed to finding a role when childbirth as a natural process traditionally placed in the women's home began to be moved into hospitals and become institutionalized and a medicalized process under the supervision of the welfare system (27). During 1950, the new education was complete and included anesthesia tasks and contraceptive counseling preventive work. Home delivery was relocated into maternity clinics. Thus, it resulted in growing demands for having primary nursing education before applying for the midwife education. All these changes were the result of a continuous development process that created professional success (15-18). Thanks to historical development, geographical position, demographic development and the development of the welfare state, the Swedish midwife association has managed well. The results were two-fold: A favorable professional position and high quality and availability of maternity care. Today are Swedish midwives responsible for maternity care, childbirth, and family planning. These areas of responsibility are unique from an international perspective (26). Romlid showed in her thesis how midwives became carriers of medical science as a result of the state's need to allow legitimate midwives to play essential roles in maternity care. However, in 1908, when all municipalities were obliged to hire legitimate midwives, midwives

became equal actors in the development of the new health and medical system (28,29). Overtime systematically targeted changes in midwifery education and investments in municipal midwives have played an essential role in reducing maternal mortality in Sweden. Between 1752 and 1900, i.e. during the 230 years, maternal mortality was reduced from 900 to 6.6/100,000 live births (15-18). In 1980, midwives got the opportunity to obtain prescription rights for contraceptives. Midwifery education in Sweden has undergone since the 1993 education reform that has been promoted into the academic level with the requirements of the professional and the scientific foundation (25). The implementation of the Bologna reform has contributed to a Master of Science level of education for midwives (30). Today midwifery is a 1, 5 (90 ECTS) years long post-bachelor education leading to professional license and midwifery diplomas (31,32).

Midwifery profession and education in Denmark

During 1666 several suggestions came to introduce a law that midwives should be examined by the medical profession at the medical faculty and that they should give the vow to the city head (33-35). The suggestion once more was taken up on the agenda in 1672 with the aim that Copenhagen will invest through the education on graduated midwives. Graduation corresponded to the European model of that time with a minimum of the standard. For this reason year, in 1672, a mandatory test and trial by physicians for midwife aspirants were introduced, and 1 year later, 1673 there were graduated 15 midwives. By Midwifery, laws entailed the midwife the obligation to assist both poor and rich women. In 1704, the Collegium Medicum with the primary purpose of working actively against quackery was founded. The magistrates were responsible for proving of midwives' knowledge, and the first results that came up were strikingly bad. It resulted in a tightening of the midwifery regulation in 1714, with the decision that the midwife aspirants were obliged to carry out midwifery training, be taught and examined by the midwife commission in Copenhagen. Midwife aspirants in the rural areas had to be examined by medical professionals. In the years 1740-1764, midwives were first taught in anatomy by a doctor, and after having passed the degree, they had to practice with an experienced midwife. In 1757, it was also decided that midwives should take a vow of confidentiality. Midwives who already carried out mandatory midwifery training were obliged to make themselves capable of difficult deliveries or for those who need to refresh knowledge or fill in gaps in knowledge. In 1714, graduation and exam in childbirth and childbirth care at medical faculty were introduced. During the year 1761, the foundation of a birth institution was established which means that education in midwifery transfers into the university. In 1770, it was decided to give the regional midwives the responsibility to teach and be updated on the news in the profession of practicing colleagues. In 1810, a birth foundation was started to finance midwifery education for the aspirants. At the same time, regulations on the midwifery were issued, requiring aspirants age to be between 20 and 30 years. Investments in midwifery education showed a positive impact on population growth in Copenhagen between 1730, from about 70,000 to 1896, approximately 90,000 inhabitants (33,34). Today the midwifery education is 3, 5 straight years long (210 ECTS) university education on bachelor level (36).

Midwifery profession and education in Norway

Norwegian midwifery education (37,38) was developed under the influence of Denmark as these two countries were in a union (37,38) during the 1700 century. Governance, education, and administration were located in Copenhagen. The first midwife trained in Copenhagen comes to Norway in 1748 together with a doctor, and these two professionals started training for midwives. Already in 1766, it is decided that only midwives who have certificates issued by the royal midwife commission have the right to practice the profession and in 1815, the Norwegian Health and Medicine Board. In 1818 started midwifery education in Christiania. In 1898, the midwife law prohibited uneducated/unlicensed women from practicing midwifery. In 1879, the right to use forceps was approved, 41 years after the Swedish midwives. In 1952, it was required to have a nursing education as a basic education for midwives. In 1969, the education was divided into 1 year of theory and 1 year

of internship on childbirth. In 1979, midwives received their university college (39). Regarding the syllabus, Siegemundin's book was also used in Norway. First, in 1844, a book for midwives written by a Norwegian doctor was published. There were two similar books from Norwegian authors until 2010 (40). After 1986, international literature is in use (37,38,41,42). Today midwifery education is a 2-year post-bachelor specialization (120 ECTS). At Oslo Metropolitan University, the University of Stavanger and Western Norway University of Applied Sciences the midwife students qualify for professional license and master of midwifery (43).

Midwifery profession and education in Island

Midwifery is the oldest profession in Iceland (44). Already in 1570, ethics and support was linked to the midwifery of interest to the church and the government. At 1685, the laws occurred that clarified the parish's responsibility in choosing the best candidate for midwifery education with specifically designated personal characteristics that cover good personal qualities such as to be truthful, good-hearted, and married and should have got children themselves (45). In addition to education in midwifery, they were also taught to carry out baptism in case of stillbirth if the priest was not nearby. A close relationship between the midwifery and the church continued until the 20th century. In 1749, midwifery textbooks were translated into the Icelandic language (44,46,47). The year 1761, midwife education was founded and led by an educated midwife but under the supervision of the First Doctor (today Directorate of Health). The studies consisted of a training period, required reading of theory and proper examination. This education model was practiced at the beginning of the 1900 century. In 1875, the first constitution so-called Midwifery act enters into force. During 1912, the midwifery education was founded and lasted 6 months. From the years 1930, professors in obstetrics and experienced midwife educated the midwife students. In 1964, the midwife education became 2 years long until 1982. After 1982, it was required to have nursing education before application to the midwifery education program. From 1994, the midwifery comprises 2 years with an academic level bachelor in obstetrics (46,47). Today midwifery education is 2 years long post-bachelor education (48).

Midwifery profession and education in Finland

Between 1154 and 1808, Finland was under the Swedish crown and rule (49,50). During this period, the professionalization of midwifery began, and the main factors affecting the process of professionalization were high morbidity and mortality among newborns and mothers (51). Another reason like in other Nordic countries was the extremely exposed situation for unmarried women and their children and the high level of infanticide in this group (51). The Finnish midwives were educated and licensed in Stockholm. During the Russian era, 1809-1917, the population increased, and so did poverty due to labor shortages in agriculture and underdeveloped industrialization. The overwhelming majority of residents lived in rural areas. Access to professional midwifery was severely limited and even less accessible to the majority because midwives worked mainly in urban areas (51). From the year 1816, free of charge Finnish midwife education and licensure was founded, at the University of Turku (49-51). The education was under the observation of the newly established Finnish medical board. To be able to study for midwives, the applicant was required to have their own child. In 1860, there were 115 licensed midwives and 94 physicians in the country. The health and medical care act regulates so that midwifery care becomes free of charge to poor and unmarried women. In 1880, only 7.4% were childbirths of legitimate midwives while traditional help women led the rest. In 1917, Finland became independent and began to organize maternity care. One of the most critical advances in the health reform was that the state would cofund the midwives' salary so that rural municipalities could hire legitimate midwives (49,50). In 1934, midwifery education was 2 years long and was separated from the medical faculty and nursing education. The gradual movement of childbirth from home to the hospital required the spread of midwife working field areas, which in turn has affected the length and content of the education. Since 1960, Finland has developed into an industrial country with the right economic prerequisites to build a welfare state. It included, among other things, making a significant contribution to prenatal care throughout the country. Step by step, prenatal and postnatal care became

part of preventive and screening health service that is publicly funded. Independent midwifery education was discontinued in the late 1906's until 1986, and education for midwives turned into new nomenclature as nurses with a specialization in obstetrics and gynecology. Since 1986, the graduate midwives were qualified for pre- and post-natal care and to work at maternity centers and hospitals focusing on normal pregnancies and births. Finnish midwives work relatively independently and today have a crucial role in maternity care with responsibility for pre- and post-natal care as well as supervision of normal births (51). Today the midwifery education is 4, 5 years of university studies (270 ECTS); students receive two-degree titles on graduation: Midwife and Registered Nurse (52).

DISCUSSION

This study shows that Sweden as a country was a pioneer among Nordic countries (12,28,29,53) when it comes to the education of midwives. Close by was Denmark (11,34,35,54). These two countries had followed each other in development until the second part of the 20th century.

Further, the content and the length of the education takes another turn in Sweden with the requirements to first have nursing education and 1 year's clinical experience before applying to midwifery studies. The Swedish midwifery education and responsibility areas were expanded with the prescription right of contraceptive drugs. The midwifery education in Finland was influenced by Sweden and took more independent form during the second part of the 20th century. The midwifery education in Norway (1,37,38) and Iceland (5,10,44,46,47) was influenced by Denmark. Norway and Iceland took a step ahead of Denmark by introducing nursing education requirements and at least 1 year's clinical experience before application to midwifery education. The length of midwifery studies after nursing education at bachelor level has also become a 30 ECTS longer in Norway and Iceland (in total 120 ECTS) compared to Sweden (in total 90 ECTS).

Since 2014 in Norway at three universities, the midwifery studies end with a master's degree in midwifery and with the right to apply for midwife authorization. In Iceland and Sweden, the aspirants first take an authorization in midwifery and then there is the opportunity to study in addition to this to get the master level in midwifery. The possibility of taking a Master's degree in Midwifery has opened up opportunities for further studies at the doctoral level focusing on midwifery. This provides a unique opportunity for improving the midwife's clinical practice and clinical procedures.

The Nordic midwives are positioning themselves today in the scientific international and national arena to improve health and care in terms of reproductive health. Some examples of these studies are: The Labor Progression Study (55), sexual abuse among pregnant women (56,57), breastfeeding and quality of care (58), the labor admission CTG (59), quality of care and with STD in Zambia (60), and symphysis-fundus measurement and prediction of SGA neonates (61). Four Nordic countries are members of the EU except Norway, and their educational paths are adapted to the Bologna agreement (62). However, when it comes to international exchanges during ongoing studies for midwives students (30), there can be barriers for exchange between universities that have midwifery education at the bachelor's level and those who have an education at the master's level (63).

CONCLUSIONS

Conclusively from the historical viewpoint, the modern Nordic midwife made a unique professional transition. The midwife made a professional class trip into a well-positioned professional identity based on science and evidenced practice. With advanced clinical skills, areas of responsibility, and scientific education, the Nordic midwife is an essential influencer who is breaking and will break new ground in the future for clinical midwifery practice.

It would be interesting to follow-up on this review focusing on the effects and differences in clinical midwifery outcomes related to differences in educational levels.

ACKNOWLEDGMENTS

Thanks to Filip Pajalic for critical language review and Mona Elisabeth Meyer for inspiring contribution to the manuscript.

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