Published in final edited form as:
J Clin Nurs. 2009 October ; 18(19): 2717–2724. doi:10.1111/j.1365-2702.2009.02892.x.

Counting Nurses: The Power of Historical Census Data

Patricia D'Antonio, PhD, RN, FAAN[Associate Professor] and
Barbara Bates Center for the Study of the History of Nursing, University of Pennsylvania School of Nursing, 2017 Claire Fagin Hall, 418 Curie Boulevard, Philadelphia, PA 19104, dantonio@nursing.upenn.edu

Jean C. Whelan, PhD, RN[Assistant Adjunct Professor]
Barbara Bates Center for the Study of the History of Nursing, University of Pennsylvania School of Nursing, 2012 Claire Fagin Hall, 418 Curie Boulevard, Philadelphia, PA 19104, jcwhelan@nursing.upenn.edu

Abstract

Aims and Objectives—This study used census data to construct a demographic profile of early 20th century nurses in the United States.

Background—Census data is recognized as a rich source of quantitative information on long term changes. However, difficulties in retrieving census data dissuade researchers from exploiting this source. IPUMS, a standardized and digitialized version of census data, enables greater ease in retrieving and analyzing data.

Design and Methods—A sample of respondents identifying as "professional nurses" for the years 1900–1950 was extracted from IPUMS categorized by the variables of race, sex, and marital status. The resulting data set was analyzed for simple frequency statistics using SPSS software.

Findings—Results revealed a tremendous increase in the number of nurses over the five decades under study. Nurses were increasingly young, female, single and white until 1930. After 1930, white and African-American women nurses began to reflect trends toward more diversity.

Discussion and Conclusions—This study is the first systematic attempt to trace the demographic trajectory of professional nurses in the United States in the early 20th century. It also demonstrates the possibilities of using digital technologies to restructure the asking and answering of historical questions. The use of quantitative methods of social history has transnational applications which can facilitate global investigations into the demographic composition of the nursing occupation.

Relevance for Clinical Practice—This way of using digitalization of census data provides a way to examine historical trans-national workforce trends. Such trends provide a firmer base upon which to construct workforce and practice strategies for a future global workforce.

Keywords

Professional nurses; historical census data; Integrated Public Use Microdata Series; population trends; African-American nurses; digital technologies

Since the 1960s, the perspectives of social history have invigorated the study of nursing's own past. Its emphasis on social structures, processes, and the experiences of (admittedly unfortunately designated) "ordinary" men, women and children opened a vast terrain of

Correspondence to: Patricia D'Antonio.

scholarship we have yet to completely mine. The charge was to "tell history from below" – to make relatively invisible individuals into influential actors; to make kinship networks into powerful forces; and to make the threads of everyday life – threads woven from new concepts like race, class, and gender – into a rich tapestry of meaning. Descriptive quantification led the assault. Historians assembled hard numbers from wills, church rolls and census data. They put these numbers through statistical measures and explored what the results meant about the lives of those who rarely left documentary evidence. Sam Bass Warner (1987) used such processes to bring to life the lives of Philadelphia's urban poor. Christopher Maggs (1983) brought them to nurses with his analysis of the records of nine British hospitals.

More qualitative approaches to social history, however, quickly dominated the field. Historians turned to the stories of less heralded groups of men and women who left documentary data in their association records, letters, reports, and diaries. The history of nursing thrived with this approach, with groundbreaking work by such scholars as Susan Reverby (1987) and Darlene Clark Hine (1989) in the United States and Celia Davis (1995) and Anne Marie Rafferty (1996) in Britain. Certainly, this kind of research remains critically important. But new challenges and opportunities now present themselves. Even as scholars acknowledge the power of international research projects to ask and answer new kinds of questions, significant intellectual and methodological barriers remain. One the other hand, new kinds of digital media and resources from around the globe flood our computer screens but their potential to provide answers to questions historians might pose remains largely untapped.

This paper returns to social history's quantitative roots in examining the possibilities of one such digital data source: the Integrated Public Use Microdata Series (IPUMS). IPUMS, based in the Minnesota Population Center, standardizes and digitalizes broad spans of United States census data collected every ten years since 1850. IPUMS digitalized data enable new kinds of questions to be posed or different kinds of answers to be retrieved about patterns of social and economic change. We used IPUMS to ask a simple question about which there is inconsistent, conflicting, and sometimes absent data: who chose to do the work of nursing in the United States between 1900 and 1950? IPUMS answers revealed not only numbers but also a much more nuanced picture of the intersection of issues gender, race, and marital status among nurses then previously acknowledged. IPUMS has recently begun a similar standardization of international census data; and similar census data also exist in other countries around the globe. We present this work, then, as the beginning steps of an international project that looks at who assumes professional responsibility for the sick, and how these choices might vary by time, place, and social context.

IPUMS

IPUMS, available at http://usa.ipums.org/usa/, consists of more than fifty high-precision samples of the American population drawn from fifteen federal censuses (Ruggles *et al* 2008). Census data has long remained the richest source of quantitative information on long term social, economic and population change, but historical analyses have always been confounded by two factors. First, researchers have been bound to analyses of those tables constructed by the US Census Bureau at the time the data was first released to the public. Much of the data in these tables was and is quite useful. But researchers interested in other kinds of data and, in particular, in analyzing correlations among such data have to manually retrieve them – an enormously time consuming project that is possible only for small geographical areas. IPUMS, by contrast, directly codes all the collected census data of samples of individuals in the context of their families. Its variable identification, data

extraction and analyses procedures then allow users to select the particular sample years and the exact information they need to answer their particular research question.

Second, researchers have long been aware of the variability of recorded census data over time. The documentation of the category of "race," for example, has been particularly problematic as both the concept and the process of categorization have dramatically changed over the more than 150 years represented in the IPUMS data base. Occupational categories change over time and something so seemingly self-evident as inclusion in a specific category of work can vary from counting all workers over ten years of age, as the census did on 1900 to counting those over 14 as it did in 1940. IPUMS maintains the integrity of data as collected in each census year. But it also layers uniform codes across all samples. This brings the relevant data into a coherent form to facilitate analysis of change over time.

IPUMS provides particular advantages to historians of nursing. Census data has long presented analytical challenges for researchers, particularly for those wanting data collected in the first half of the century. The US Census Bureau frequently changed designations used to identify nurses – and sometimes included student nurses in the designation – making accurate estimates of the number and characteristics of early nurses difficult. The uniform codes used by IPUMS across samples permit the disaggregation of the "nurse" category into separate categories of professional nurses, student professional nurses, and practical nurses permitting analyses specific to each category. This study sampled all respondents who identified themselves as "professional nurses" and analyzed the data by race, sex and marital status in the census years of 1900, 1910, 1920, 1930, 1940, and 1950. The "professional nurses" category included all who had, at some point over these six census decades, identified their occupation as "nurse" or "professional nurses." Given the nature of census questions, identification mapped to "gainfully employed" although it did not specify full versus part time employment. This study excluded those identifying as student or practical nurses. Extracted IPUMS data was analyzed for simple frequency statistics using SPSS software.

Who is a Nurse: Gender and Race

Numbers of men and women who identified themselves as "professional nurses" exploded in the early decades of the twentieth century: from 10,000 in 1900; to 74,000 in 1910; to 117,000 in 1920; to 230,000 in 1930 (Table 1). The overwhelming majority of these individuals were white women. But despite the gendered images, it was not until the 1930s that professional nursing actually became almost exclusively women's work. Women represented 91% of all such nurses in 1900, and their proportionate representation rose through the succeeding decades until, by 1930, they represented 98% of all professional nurses. And despite the racial images it was not until the 1930s that professional nursing became almost exclusively white women's work. White women represented 89% of all women who identified as professional nurses in 1900; and by 1930 they represented 95% of all nurses – a percentage that dropped only to 94% for the 1940 and 1950 census years (Table 2).

The dominance of white women nurses, however, did not come at the expense of African American women. Throughout the early decades of the twentieth century, the proportional representation of African American women who identified as professional nurses remained fairly stable at an approximate average percentage rate of 3% of all women nurses for the first five decades of the 20th century. The dominance of white women came at the expense of men. Men represented 9% of those identifying themselves as professional nurses in 1900, but their proportional representation dropped steadily until, by 1930, they represented only 2% of all those identifying themselves as professional nurses (Table 2). As men students,

many experienced the disdain of women nurses. "There is hardly a day that we are not called orderlies by the charge nurse on the wards," one wrote in 1925, "and our work consists mainly of carrying bedpans, urinals and giving rectal treatments, the female nurses do the rest" (Ernst 1925) And as graduates, they had no place as colleagues within nursing organizations; and they had few opportunities for post-graduate study (Jones 1934,Witte 1934).

Yet, even as the numbers of men identifying as professional nurses were dropping, the racial distribution among them was significantly changing. Through the early twentieth century, professional nursing was steadily becoming the work of white men as well as white women. While white men represented 80% of all men identifying as professional nurses in 1900, by the 1920s 98% of all such men were white (Table 2). In many respects, this is hardly surprising. African American men were the group with the least opportunities to train as nurses. There remains little evidence of a place for them in training schools within either African American or white run hospitals. Nor did they seem to find a place within the psychiatric hospitals where the vast majority of men who would nurse trained. But what is more surprising is that African American men were simultaneously losing their place among untrained or practical nursing as well. African American men represented 23% of all such men who identified themselves as such in 1910. By 1930, they represented only 10% of such nurses (Table 3). Practical as well as professional nursing had become the work of white men.

Certainly, by the 1930s, all nurses needed some education to read orders and record observations. And professional nurses needed at least a high school education to calculate complicated medication doses, to interpret complex surgical orders, and to summarize and record their patients' changing clinical states. African American men did have less educational opportunities than white men; and they had more incentives to leave school earlier and join the labor market to support themselves and their families. In 1900, 53% of white male children were enrolled in school, but only 30% of African American male children were. But by 1930, increased public educational opportunities drew proportionately more African American male children into school. The 71% of white male children enrolled represented a 34% increase; but the 60% of African American male children in school represented an increase of 106%. As interestingly, the ratios of white and African American male children enrolled in school in 1930 (71% to 60%) approached that of white and African American female children (71% to 61%) (National Center for Educational Statistics, 1993). By 1930, that is, the theoretical pool of African American men eligible for admission to nursing school approached that of their white counterparts. Yet their actual numbers in nursing schools remained negligible. African American men may well have stayed away from nursing because, at a time when their masculinity was under constant political and economic assault from either subtle or overt racist practices, they felt more vulnerable to its gendered images. And they may well have been kept away because black women's hands on white bodies may have raised some sexualized anxieties, but those of black men on white bodies represented completely unthinkable sexual images.

Who is a Nurse: Race and Marital Status

Through the 1930s most white and African American women who identified as nurses were single. But white women nurses were significantly more likely to be single than were African American ones (Table 4). In 1920 eighty three percent of white women nurses were single as opposed to 52% of African American women nurses. Through the 1920s, trends began shifting for all white working women as more and more remained in the labor market after marriage and leaving only when expecting their first child. By 1930, the numbers of single white women nurses had dropped to 72% and those married and living with their

husbands had risen from 5% in 1920 to 12% in 1930 (US Census Bureau 2003). The numbers of single African American women had similarly dropped to 44% by 1930 and those married and living with their husbands also rose from 21% in 1920 to 26% in 1930 (Table 4). Still, white women nurses, as were white women in general, remained significantly more likely to leave paid nursing after marriage than were African American woman nurses. Married African American nurses, sometimes by choice but more often by racial practices that sharply curtailed the employment options and opportunities of African American men, had to work in paid employment to help support themselves and their families. And they were much more vulnerable than white women nurses when separated from their husbands or when they found themselves widowed. In 1930, thirty one percent of these African American women nurses remained in the nursing workforce when separated or widowed, as compared to 15% of white women nurses in similar circumstances (Table 4). African American women nurses may well have had the same social and emotional supports from families and friends during these trying periods. But it does seem that they were less likely than their white peers to be able to depend upon them for economic support.

By 1940, however, the patterns marital status of both white and African American women identifying as nurses became virtually indistinguishable (Table 6). Sixty-seven percent of white women nurses were single as were 63% of African American ones. Similarly, 19% of white married women nurses remained in the workforce as did 21% of African American ones. More single and married white and African American women identifying as nurses worked than did their American female counterparts. In 1940, 46% of single American women worked and 16% of married ones did. Both white and African American women nurses were more educated than their community counterparts and, with their education, had more employment possibilities open to them either within or outside nursing. By 1940, all American nurses needed at least a high school degree to enter nursing school. In 1940, only 28% of all white women and 8% of all African American women held a comparable degree (US Census Bureau 2007).

But the comparisons between 1930 and 1940 census data masks the devastating effects of the 1930s economic depression on all nurses. As both Susan Reverby (1987) and Darlene Clark Hine (1989) point out, this period was a near catastrophic time for all nurses. Calls for private duty nursing disappeared as fewer and fewer patients could afford the costs of nursing care. "It is not unusual for our members to wait three weeks for a call," one New York State nurse reported. And that call, she continued, "… may not provide them with more than three days of work, when the long wait begins again" (Collins 1932). The federal Civil Works Administration (CWA) provided temporary employment for thousands of nurses to work in hospitals and on public health projects in their communities. Most of these nurses were white women, but some were also African American. In Richmond, Virginia, for example, CWA funds supported the salaries of seven white women nurses and three African American women nurses to work in city hospitals; and those of twenty white women nurses and twenty one African American women nurses to work in its public health programs (Zeigler 1934). Later monies, available through the new Social Security Act, allowed some of these nurses to assume more permanent positions, particularly those who worked for public health care agencies.

A more permanent solution came as hospitals, experiencing their own economic pressures, discovered that hiring private duty nurses to work as hospital staff nurses was significantly less expensive than running a formal training program. American nursing leadership had long urged the hiring of graduate staff nurses as a way to relieve students of their complete responsibility for the care of the hospital's patients. But hospitals and the nurses who ran their training schools had long preferred the stability and, often, the relative tractability, of a student rather than a graduate nurse workforce. Preferences began changing in the 1930s. As

historian Jean Whelan (2004) argues, hospitals discovered that hiring private duty nursing into temporary staff nursing positions gave them much more financial flexibility: private duty nurses, unlike students, could be let go when the patient census fell and rehired again as soon as it rose. Over eight hundred hospital based schools of nursing closed during the 1930s (Kalisch and Kalisch 1995, p. 312). These were almost exclusively white schools. As Hine (1989) has argued, few white or integrated hospitals sought the services of private duty African American women nurses; and most of the black hospitals seemed quite content to continue to rely on students' work with their patients. Indeed, between 1930 and 1940, the distribution of marital status and workforce participation patterns of African American women nurses remained rather stable. But in this same time period, the distributions of those of white women nurses changed to resemble that of their African American colleagues. By 1930, data on African American women nurses already reflected their tenuous place in the nation's social and economic world. By 1940, the data on white women nurses suggests the extent to which this tenuousness was shared by all nurses (Table 4).

But however tenuous their place, neither white nor African American women nurses cast themselves as victims of their circumstances. Abbie Watson ("An Autobiography…" p. 6), for example, a white nurse who remained single during her nursing career, used her youth, ambition, and relative freedom to move across the country to her advantage during these difficult times. Watson, raised in rural Michigan and encouraged to consider nursing by her family's physician, had attended the Harper Hospital School of Nursing in Detroit, Michigan and graduated, in 1930, into a position as a staff nurse in the hospital's outpatient department. At that time, Harper Hospital required all staff nurses in such positions to concurrently enroll in public health nursing courses at Wayne State University, an experience Watson recalled as simultaneously enriching and exhausting as it recapitulated the demands of the earliest years of hospital based training when students attended classes after full work days on the hospital's wards, and, in her words, "… no doubt diluted the value of study" (Watson "An Autobiography" p. 12). But when Watson lost her position in 1933 during the Hospital's financial retrenchment, she was able to take full advantage of Wayne State's offer to waive tuition for unemployed nurses, enroll in a course that gave her field experience with Detroit's Visiting Nurse Association, and, quite quickly, assume temporary paid positions with the agency. Watson, however, wanted more and. "…"lured by reports of bright sunshine, open spaces, as well as advanced public health programs…," left Detroit for Los Angeles in 1935 (Watson "An Autobiography" p. 14). Such reports dashed the hopes of many such migrants, and Watson found few nursing opportunities. Her break came when the public health nurses already employed by California's State Health Department refused to venture into Tulare County, in the San Joaquin Valley, to investigate reports of a highly infectious polio–myelitis epidemic. Watson and one other nurse agreed to assume this responsibility. Competition for full time employment, however, remained fierce. When, after the acute epidemic has passed, the county realized it needed a public health nurse to work with the flood of migrant workers arriving from what she described as the "dust bowl" of the Midwest, she was the one chosen. Her colleague, Watson admitted, was "older, more experienced, and no doubt could have done a better job." But she had the competitive edge, she acknowledged, in that she was young, energetic, and more enthusiastic (Watson "An Autobiography" p. 14).

Married nurses often had less mobility during this difficult decade but they were no less resourceful. Given their frequent inability to search for positions outside their communities they often searched for positions outside of nursing. Lizzie Gary Griffith Compton Bolton's husband, for example, had lost both his position as Georgia's Field Secretary at the Southern Baptist Theological Seminary and his lifetime savings after the 1929 stock market crash. Bolton, a white North Carolina native, had not formally worked as a nurse in decades although, as a minister's wife, she had often cared for those in their communities. But even

if she had wanted to resume nursing, there were few positions to be had in 1930s Georgia. Instead, Bolton took a commissioned job as a travelling salesperson for the *Farmer's Wife*, a women's magazine written exclusively for farm women, and one available only through personal subscription. Bolton put her three children through college selling such subscriptions, travelling alone on isolated rural roads with a gun in her car's glove box and the confidence of feeling "perfectly capable of putting a bullet in the head of any man who attempted to rape or molest her (Bolton "About the Boltons").

Similarly, Florence Jacob Edmunds, an African American nurse, turned to sewing to supplement her husband's salary during the 1930s. Edmunds, a Pittsfield, Massachusetts native, had trained at Lincoln Hospital in New York City after the white school of nursing in her community had refused her admission as it had never entertained the possibility of an African American student. She was an extraordinarily talented nurse: she had won a scholarship to study at Teachers College, and had worked at the Henry Street Settlement House after receiving her degree. Her husband, another Pittsfield native, had followed her to New York City but they both returned home as they felt Pittsfield, a small city in western Massachusetts was a better place to raise their family. Edmunds wanted to and needed to work. But, in her mind, Pittsfield, with its very small African American community, was still not ready to conceive of the idea of an African American nurse. She took in as much sewing as she could, using the income from that and her husband's second job to secure their children's education (Edmunds "Reminiscences").

But the employment picture dramatically changed during the 1940s which brought World War II and an acute shortage of nurses for both civilian and military service. Bolton was enticed back into nursing with hospital positions that paid enough to allow her to finally realize her "life long dream" of buying her own home (Edmunds "Reminiscences"). And Edmunds found that Pittsfield was so ready to consider an African American nurse that both the local visiting nurse association and, she ironically noted, the hospital that had once refused her admission to its training school competed for her services (Edmunds "Reminiscences"). But drawing retired or rejected nurses back into the workforce could not meet demand. The federal government had to create a massive program that subsidized both white and African American nurses' training through the creation of the Cadet Nurse Corps in 1943. The Corps, administered by United States Public Health Service, effectively recruited women, expedited their training in schools that met accepted standards, and assigned them to essential civilian and military positions "for the duration of the present war." It was a remarkably effective program, ultimately training over 124,000 white and 3,000 African American nurses (Office of the Public Health Service Historian, 2008). But the actual numbers of nurses increased only 22% during this decade, reflecting a continuing decline from growth rates of 97% in the 1920s and 47% in the 1930s. What had been widely accepted as an oversupply of nurses in the 1930s yielded relatively quickly to the shortages of professional nurses throughout the 1940s and into the 1950s. As in the 1920s, the insatiable demands by hospitals confronted a broader range of work choices available to women high school graduates in both the civilian and the military sectors. By 1944, the American Hospital Association warned that close to 23% of American hospitals had closed wards and operating rooms because they had too few nurses (Kalisch and Kalisch 1986, p. 504) And by 1950 it reported over 22,000 unfilled nursing positions among its member hospitals (Kalisch and Kalisch 1995, p. 370). These were troubling numbers. In 1946, the nation had embarked on a massive hospital building program, financed through the federal Hospital Survey and Construction Act that would explicitly make the hospital the center of the American health care system. By 1951, the Act, also known as the Hill-Burton Act in honor of its sponsors, had added 88,000 new hospital beds across the country. By 1968, it, ultimately, had financed the building of 9200 new hospitals with over 400,000 new beds (Kalisch and Kalisch 1995, p. 378–379).

Implications for Policy and Research

This analysis of IPUMS data confirms parts of American nursing's traditional narrative that have influenced the construction of public policies. They demonstrate the explosive growth in terms of the numbers of nursing and the predominance of single and white women who chose to do the work of nursing. But they also bring other parts of the narrative into sharper focus. The predominance of white women, a phenomenon in place by the 1930s, actually came fairly late in our history. This raises intriguing new research questions. As historians have argued, the early 20th century United States' reforms in medical education and practice decreased opportunities for those of color and for women who wished to be physicians (Ludmerer, 1985). Could the same be argued about reforms in nursing education and practice? Did curriculum standardization and licensure requirements, for example, have the same effect in nursing?

But what seems most intriguing is that the closure of nursing practice to women and men of color remained only a brief moment in its history. Almost immediately, the census numbers show a steady, albeit slow, movement to diversity. This movement accelerated through the 1950s as changes in practice patterns, funding opportunities, and curricular structure and placement did affect the numbers of American nurses. The numbers leaped 118 percent in the 1950s, before settling to fairly stable advances of 30 to 40 percent each year through the closing decades of the twentieth century. But more dramatic changes occurred within nursing: even as the absolute numbers of white women nurses grew, nursing was less and less exclusively white and less and less exclusively women's work. In 1950, ninety-eight percent of all nurses were women; and 94% were white women. But by 1970, ninety-four percent of all nurses were women and, among these only 87% were white women. The numbers continued to plummet: by 1990, women represented 91% of all nurses, and only 78% of all nurses were white women; and by 2006 only 87% of all nurses were women and only 70% of nurses were white women. In terms of blunt demographics, nursing had returned to those surrounding its late 19th century birth where, in 1900, women represented 91% of all nurses and white women represented 89% of such women (Table 1).

On one level, this study, possible only through newly digitalized sources, represents the first systematic attempt to trace the demographic trajectory of those who cared for the sick in the United States in the first half of the 20th century. On another level, it represents the possibilities of digital technologies to restructure the asking or the answering of important historical questions. Finally, and perhaps most importantly, it explores ways in which the quantitative methods of social history – methods which have been instrumental in shaping our sense of our historical past in individual countries around the globe – can now move into an increasingly trans-national context. This study of digitalized and standardized US census data provides one plank of an international project that uses similar digitized data to explore the fundamentally important question of who cares for the most vulnerable among us.

Acknowledgments

The authors gratefully acknowledge and thank Matthew Creighton and Hiram Beltran-Sanchez, of the Population Studies Center at the University of Pennsylvania for their aid in compiling the data analyzed in this study. This article was funded by National Institute of Health, National Library of Medicine Scholarly Work in Biomedicine and Health Grant 5G13LM8199-3 (D'Antonio) and the National Institute of Health, National Library of Medicine Scholarly Work in Biomedicine and Health Grant 1G13LM008400 (Whelan).

References

Bolton, RL. Robert Lewis Bolton Papers, #4043 (Box 5, Folder #33) Southern Historical Collection. Chapel Hill: Library of the University of North Carolina; About the Boltons.

Clark Hine, D. Black Women in White: Racial Conflict and Cooperation in the Nurisng Profession, 1890–1950. Bloomington, IN: Indiana University Press; 1989.

Collins E. Methods for stimulating employment. American Journal of Nursing. 1932; 32:163–166.

Davies, C. Gender and the Professional Predicament of Nursing. London: Taylor & Francis Group; 1995.

Edmunds, FJ. Black Women Oral History Project, NXCP87-A669. New York: Butler Library, Columbia University; Reminiscences of Florence Jacob Edmunds.

Ernst, A. Archives of the Pennsylvania Hospital Training School for Men, Box 2, Folder 2. Philadelphia: The Pennsylvania Hospital; 1925. Allen to Leroy Craig.

Jones FJ. Vocational opportunities for men nurses. American Journal of Nursing. 1934; 34:131–133.

Kalisch, PA.; Kalisch, B. The Advance of American Nursing. 2nd edition. Boston: Little, Brown; 1986.

Kalisch, PA.; Kalisch, B. The Advance of American Nursing. 3rd edition. Philadelphia: J.B.Lippincott Company; 1995.

Ludmerer, K. Learning to Heal: The Development of American Medical Education. New York: Basic Books; 1985.

Maggs, C. The Origins of General Nursing. London: Croom Helm; 1983.

National Center for Educational Statistics. 120 years of education: A statistical profile. Washington, DC: US Department of Education, Office of Educational Research and Improvement; 1993. Available at http://nces.ed.gov/pubs93/93442.pdf

Office of the Public Health Service Historian. The cadet nurse corps 1943–48. 2008. Available at http://lhncbc.nlm.nih.gov/apdb/phsHistory/resources/cadetnurse/nurse05.html

Rafferty, AM. The Politics of Nursing Knowledge. London: Routledge; 1996.

Reverby, S. Ordered to Care: The Dilemma of American Nursing, 1850–1945. New York: Cambridge University Press; 1987.

Ruggles, S.; Sobek, M.; Trent, A.; Fitch, CA.; Goekin, R.; Hall, PK.; King, M.; Ronnander, C. Integrated Public Use Microdata Series: Version 4.0 [Machine-readable database]. Minnepolis, MN: Minnesota Population Center [producer and distributor]; 2008. Available at http://usa.ipums.org/usa/

US Census Bureau. Marital Status of Women in the Civilian Labor Force: 1900–2002. 2003. Available at http://www.census.gov/statab/hist/HS-30pdf

US Census Bureau. 2007. Available at http://www.census.gov/population/socdemo/education/tableA-2.txt

Warner, SB. The Private City: Philadelphia in Three Periods of its Growth. Philadelphia: University of Pennsylvania Press; 1987.

Watson, A. District of Columbia League for Nursing Education Collection, MS C 297, History of Medicine Division. Bethesda, MD: National Library of Medicine; An autobiography of my public health nursing career.

Whelan JC. "A necessity in the nursing world': The Chicago nurses professional registry, 1913–1950. Nursing History Review. 2004; 13:49–75. [PubMed: 15648578]

Witte F. Opportunities in graduate education for men nurses. American Journal of Nursing. 1934; 34:133–135.

Zeigler FH. Relief unemployment. American Journal of Nursing. 1934; 34:760–762.

J Clin Nurs. Author manuscript; available in PMC 2010 October 1.

Table 1

Individual Women and Men Self-Identifying as Professional Nurses, by Gender and Race, 1900–2006.

YEAR	TOTAL NURSES	TOTAL WOMEN	WHITE WOMEN	AFRICAN-AMERICAN WOMEN	OTHER WOMEN	TOTAL MEN	WHITE MEN	AFRICAN-AMERICAN MEN	OTHER MEN
1900	10,833	9,833	9,632	201	N/D	1,000	800	200	N/D*
1910	73,917	69,707	66,596	3,010	101	4,210	4,009	201	N/D*
1920	116,965	112,525	109,296	2,927	302	4,440	4,339	101	N/D*
1930	230,482	224,826	218,766	5,454	606	5,656	5,353	101	202
1940	340,025	327,464	319,303	7,361	800	12,561	12,461	100	N/D*
1950	415,439	405,950	391,435	13,236	1,279	9,489	8,818	671	N/D*
1960	905,914	890,574	841,784	42,419	6,371	15,340	13,150	1,893	297
1970	1,286,900	1,209,400	1,115,800	70,400	23,200	77,500	70,500	5,700	1,300
1980	1,704,600	1,567,060	1,398,800	110,460	57,800	137,540	121,160	12,160	4,220
1990	2,437,766	2,226,569	1,908,344	197,356	120,869	211,207	176,402	21,418	13,387
2000	3,175,872	2,821,680	2,321,232	264,003	236,445	354,192	282,272	33,590	38,330
2006	3,534,799	3,087,171	2,483,250	302,863	301,058	447,628	343,607	42,620	61,401

*The designation N/D represents categories where the sampled numbers were either absent or too small for meaningful comparisons

J Clin Nurs. Author manuscript; available in PMC 2010 October 1.

Table 2

Percentage of Women and Men Self-Identifying as Professional Nurses, by Gender and Race, 1900–1950

YEAR	TOTAL WOMEN	WHITE WOMEN AS % OF TOTAL NURSES	WHITE WOMEN AS % OF ALL WOMEN NURSES	AFRICAN-AMERICAN WOMEN AS % OF ALL WOMEN NURSES	OTHER WOMEN AS % OF ALL WOMEN NURSES	TOTAL MEN	WHITE MEN AS % OF ALL NURSES	WHITE MEN AS % OF ALL MEN NURSES	AFRICAN-AMERICAN MEN AS % OF ALL MEN NURSES	OTHER MEN AS % ALL MEN NURSES
1900	91%	89%	98%	2%	N/D	9%	7%	80%	20%	N/D*
1910	94%	90%	95%	4%	1%	6%	5%	95%	5%	N/D*
1920	96%	93%	97%	3%	<1%	4%	4%	98%	2%	N/D*
1930	98%	95%	97%	2%	<1%	2%	2%	95%	2%	3%
1940	96%	94%	96%	3%	<1%	4%	4%	99%	<1%	N/D*
1950	98%	94%	96%	3%	<1%	2%	2%	93%	7%	N/D*

*The designation N/D represents categories where the sampled numbers were either absent or too small for meaningful comparisons

Table 3

Practical Nurses, Men, by Race, 1900–1950

YEAR	TOTAL MEN	TOTAL WHITE MEN	WHITE MEN AS % OF ALL MEN	TOTAL AFRICAN-AMERICAN MEN	AFRICAN-AMERICAN MEN AS % OF ALL MEN
1900	6,514	5,612	86%	902	14%
1910	3,909	3,009	77%	900	23%
1920	4,139	3,531	85%	608	15%
1930	3,030	2,727	90%	303	10%
1940	7,323	6,274	86%	958	13%
1950	5,747	5,087	89%	660	11%

Table 4

Marital Status of Professional Nurses by Race, 1920–1950

	1920		1930		1940		1950	
	WHITE	**AFRICAN-AMERICAN**	**WHITE**	**AFRICAN-AMERICAN**	**WHITE**	**AFRICAN-AMERICAN**	**WHITE**	**AFRICAN-AMERICAN**
SINGLE	83%	52%	72%	44%	67%	63%	40%	32%
MARRIED, SP*	5%	21%	12%	26%	19%	21%	42%	39%
MARRIED, SA**	4%	14%	4%	9%	4%	8%	4%	6%
WIDOWED	6%	14%	9%	22%	6%	3%	7%	11%
DIVORCED	2%	0%	2%	0%	3%	5%	7%	12%

*SP=Spouse present

**SA=Spouse absent and includes those separated from spouses