Reproductive history and late life health status among older African American and White Women

Reproduction and health

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Research attention is increasingly focusing on the analysis of earlier-life determinants of later life health outcomes. It has become an established approach among some social science streams to look at life-course trajectories rather than at more recent associations as determining outcomes. However, extending these approaches to research on health outcomes among older age groups is usually hampered by a lack of appropriate sources of data that ascertain both current information about health outcomes among older populations, and retrospective information about relevant earlier-life behavioral and health patterns among them.

This is especially true of the impact of past reproductive behavior, or reproductive history, on health outcomes among older persons. Most sampling frameworks used by large-scale, nationally representative studies collecting information on reproduction are limited to women in the childbearing years, aged approximately 15 to 49 (examples for the United States include NSFG, NSFH, CPS etc). Studies that gather data from older
persons (e.g. retirement or health studies) rarely collect retrospective information on reproductive history in sufficient detail.

However, scholars are beginning to point out the potential impact of reproductive behavior occurring comparatively early in life (during the childbearing years) on health outcomes noted later in life (past menopause) (e.g. Kington et al., 1997). They demonstrate that reproductive patterns such as parity have a long-term impact not only on specific diseases such as diabetes, cardiovascular disease, and some kinds of cancers, but also on more general health and functional status. They show that in addition to parity, other aspects of reproductive history, including the timing of childbearing and the experience of infant death, also influence late-life general health outcomes. Women with high parity (>6 children), history of an infant's death, and an early first pregnancy (completed before age 18) are more likely to be in poorer health and functional status later in life. These scholars note the dearth of studies exploring these linkages and call for further research to substantiate their findings.

Thus, there are three aims of the research proposed here. First, to re-examine the findings of Kington et al. with another large national data set, containing information on elderly persons' current health and on aspects of their reproductive history. Second, to extend the scope of such inquiry by examining the impact of aspects of reproductive history not only on general physical health, but also on subjective health perception and on psychosocial health later in life. Third, to explore ethnic differences by contrasting patterns of associations among African Americans and whites.

4. Conceptual Framework

Past studies, since they number so few, do not provide much guidance in formulating a conceptual framework to specifically examine the impact of reproductive history on late life general physical and psychosocial health. A general approach examining these associations must control for socioeconomic status variables, since socioeconomic status is associated both with reproductive patterns and health outcomes. Modeling ethnic differences in the associations is specifically indicated, since much prior research indicates group differences in health status and pathways to health outcomes through various stages of the life course (e.g. Fernandez et al, 1998).

There are, however, indications of ways in which aspects of reproductive history would influence physical and psychosocial well being later in life, through biomedical and social pathways. First, regarding parity. Women who bear children would presumably be in better physical health. The ability to bear children may indicate better physical health status than infertility. Regarding women who have not borne children either voluntarily, or due to the infertility of their partner, they may be at risk of poorer physical health, since research has shown that bearing children exercises a protective effect on certain aspects of physical health. What should be investigated is first, whether very high fertility (such as bearing 6 or more children) is associated with poorer health later in life. Second, the late-life consequences of bearing no children should also be investigated in more detail. Regarding social psychological pathways, the maternal role has been shown
to be an important one for women, positively influencing physical and psychosocial well being (refs). The social networks provided by children also exercise a positive effect on physical and psychological well being later in life. Again, clarification is needed about the consequences of very high fertility and of bearing no children.

Second, regarding the experience of child loss, in this study we propose to examine the incidence of pregnancy loss rather than infant death. We propose to measure pregnancy loss by looking at the discrepancy between numbers of pregnancies and numbers of live births reported by women. This would capture experience of miscarriages (perhaps including induced abortion) and stillbirths. Again, we can expect that women who experienced fetal loss or stillbirths would be in poorer physical health than women who did not. We might also investigate whether having had such experiences would be associated with poorer psychological well being later in life.

In this study, we are not in a position to examine the timing of childbearing (age of first pregnancy). However, we can explore other aspects of reproductive history, namely age of menarche, age at menopause, and whether or not the respondent had surgical removal of uterus and / or ovaries, or used an oral contraceptive or other hormones. This study would explore the associations between these experiences / behaviors and physical and psychosocial well being later in life.

6. Main Hypotheses

We test the following hypotheses, first, that being childless, or having 6 or more children, will have negative consequences on physical and psychosocial health later in life. Second, that pregnancy loss will also have negative health consequences. We investigate the nature of the associations between oral contraceptive use and late life health, and of timing of menarche and menopause and health. We expect that there will be ethnic differences in the causal associations, given the different socio-economic and health experiences of minority groups in the US.

7. Materials and Methods

*The ARIC Community Component.*

We propose to use the ARIC (Atherosclerosis Risk in Communities) data for this research. This study is a prospective investigation of the etiology and natural history of atherosclerosis and atherosclerotic heart disease in four US communities, (Forsyth County, NC, Jackson MI, suburbs of Minneapolis, MN, and Washington County, MD). The Forsyth County sample is representative of its African American population, and the other three represent the ethnic mix of their communities. This enables the ethnic contrast proposed in this study.

A total of 16,000 adults aged 45 - 64 years were examined twice, three years apart, beginning in November 1986. This selection criterion provides data that are very suitable for this study, as women who are on the threshold of old age (just past menopause) can be
selected for the analysis. This will enable us to examine the impact of reproductive history on subsequent health status.

Home interviews ascertained socioeconomic factors, family medical history, and cardiovascular risk factors of selected respondents. Follow-up examinations were then conducted in a clinic setting (The ARIC Investigators, 1989). We intend to use data on women.

**Variable measurement**

The health outcomes of interest in this study include:

1. Subjective health perception (page A-83, q9): "Compared to other people your age, would you say that your health is excellent, good, fair, or poor?" Also ascertained in the Annual Follow-up Questionnaire, (page A-258, question C6).

2. Presence and number of severe or chronic conditions (page A-83, q10), including hypertension, high blood cholesterol, heart attack, stroke, diabetes, cancer, chronic lung disease, asthma.

3. Any overnight hospitalization in the past year (page A-83, question 11).

4. Psychological well-being, indicated by depressive symptomatology. This is given in the ARIC Health and Life Profile component of the survey. Several relevant questions about mood, mental states, life satisfaction, social networks, etc. are asked. The answers can be combined into an appropriate scale to indicate psychosocial well being.

The main explanatory variables of interest are those relating to reproductive history. The ARIC questionnaire has an entire section on reproductive history, that asks questions on:

1. Menstrual and pregnancy history (age at first menstruation, number of pregnancies, number of live births, age of cessation of menstruation, etc; questions A1 - A10, p. A-173 to A-174).
4. Gynecologic surgery (removal of uterus and/or ovaries, age at surgery; questions D45-D49, page A-177)
Control variables for background socioeconomic status are included as follows, in the Home Interview Questionnaire:

1. Age, Page A-82: Q4, question 4, selects people aged 45 through 64, from month, day and year or birth.
2. Family history of chronic disease, Page A-83 to A-87, questions 12 through question 27).

Methods

Multivariate statistical techniques will be employed. The specific technique will be determined after the distributions of the dependent variables are examined, and their final form selected. For example, to analyze subjective health perception, ordered logistic regression techniques may be the most appropriate, since the variable has 4 categories (which might be collapsed to 3) that have an inherent rank ordering. Presence of chronic conditions can be examined through logistic regression methods, and depending on the distribution, numbers of chronic diseases can be analyzed by either ordered logistic regression or OLS regression. Overnight hospitalization in the last year can be examined by logistic regression methods. Intensity of depressive symptomatology may be analysed through OLS regression methods.

References

