LETTER OF INTENT to the CFIR

**Project Title:** Partnered Sexuality and Cardiovascular Health among Older Adults

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**Aims:** The proposed project is a pilot study of a broader project which aims to promote scientific understanding of the links between partnered sexuality and cardiovascular health among older adults. There are three specific aims for the pilot study:

**Aim 1:** Collect pilot clinical data on partnered sexuality and cardiovascular health among older adults.

**Aim 2:** Assess the pilot data collection process in Aim 1 to examine the feasibility of the approaches including recruitment, randomization, retention, assessment procedures and implement of the innovative strategy of linking survey questionnaires to patients' medical records.

**Aim 3:** Conduct preliminary analysis of the pilot data collected in Aim 1 to develop preliminary results on the associations of sexuality with a range of cardiovascular biomarkers.

Results from the pilot study will be essentially important for the research team to develop a larger scale NIH R01 proposal (PA-15-042, Family and Interpersonal Relationships in an Aging Context (R01) - See more at: [http://grants.nih.gov/grants/guide/pa-files/PA-15-042.html#sthash.A40AhZMb.dpuf](http://grants.nih.gov/grants/guide/pa-files/PA-15-042.html#sthash.A40AhZMb.dpuf)).

**Significance:** Previous research on sexuality often focuses on adolescence, young and middle adulthood, which are usually considered to be the most sexually active stages of life\(^1\). Scientific understanding of sexuality in later life, especially the consequences for health, is greatly limited both theoretically and empirically. This is problematic given that growing evidence shows that sexuality remains important for quality of life among many older adults\(^1\)\(^-\)\(^3\), and that sexuality per se is a key, although often overlooked, dimension of health and well-being for older adults\(^4\)\(^,\)\(^5\). This study will make a significant contribution across a broad range of disciplines by promoting scientific understanding of the links between partnered sexuality and cardiovascular health among older adults. We focus on heterosexual partnered sexuality—defined here as sex, in particular sexual activity and sexual intimacy, in an established heterosexual relationship with a partner because, especially at older ages and in current cohorts, the vast majority (95%) of sex takes place with another person in a heterosexual relationship\(^6\). We are particularly interested in cardiovascular health because cardiovascular disease (CVD) is the leading cause of death in the U.S. and it is directly affected by social behavioral factors\(^7\). The prevalence of CVD increases remarkably at older ages\(^8\).

We develop an integrated social and biological model to hypothesize that partnered sexuality—one of the most fundamental types of social relationships—holds significant meanings for individuals’ life context and functions to shape multiple psychosocial and biomedical pathways that lead to cardiovascular health outcomes. For example, sexual activity is a form of exercise. During sexual intercourse as well as foreplay, both men and women experience stretching of muscles and tendons, flexion of joints, and hormone fluctuation\(^9\), which may promote cardiovascular fitness\(^10\). Yet, there are also clinical concerns that sexual activity may precipitate acute cardiac events for patients with a prior history of cardiovascular disease\(^11\)\^-\(^13\). Moreover, the intimacy built into a sexual relationship is a source of emotional and social support, which is a key component that defines life context and in turn shapes health\(^14\). In addition, partnered sexuality and satisfaction with it may reduce exposure to stress, modify response to stress and promote recovery from stress\(^15\), thereby reducing the risk of cardiovascular disease\(^16\).

Results from this project speak to health policy and practice as well as to our general understanding of sexuality in later life. Specifically, the project will accumulate innovative knowledge to help to educate medical professionals and healthcare providers to understand health implications of sexuality in later life. This is important given the lack of explicit attention to sexual activities especially of older patients in current healthcare system. The importance of this study is also highlighted by the continued very high prevalence of CVD among older adults in the U.S. CVD is the leading cause of death and disability in the U.S., accounting for nearly 787,000 deaths in 2011—that's about one of every three deaths. Because the onset of most CVD can be delayed and the disease treated, identifying relevant risk factors is extremely important in designing effective prevention strategies and treatment programs. Previous research on CVD has been mostly based on a biomedical model with a focus on proximate behavioral risk factors, such as diet and exercise, ignoring upstream causes of social factors (such as intimate sexual relationships) that lead to the development of the disease. The integrated social and biomedical model we build in this study will comprise a significant scientific contribution in understanding the development of CVD.
Innovation: To our knowledge, this project is the first study that applies interdisciplinary approaches to study sexuality linked to cardiovascular health in later life. One particularly innovative feature of this proposal is the interdisciplinary nature of the assembled team, with expertise in sexual and intimate relationships (Liu), cardiovascular health (Wang) and geriatric medicine (Haque). The project also innovates by 1) providing one of the first assessments on sexuality in later life, particularly in relation to a range of cardiovascular biomarkers—which is largely ignored in healthcare system; 2) taking advantage of clinical settings and linking survey questionnaires to patients’ medical records; and 3) using cutting-edge quantitative methods to analyze clinical data.

Approach: Aim 1 will be addressed in two steps.

Step 1: Participants Recruitment and Survey Data Collection. The targeted sample size is 80 for this pilot study with 40 men and 40 women. The survey questionnaires and consent forms for medical record release will be distributed in Sparrow Primary Care Practice (i.e., Sparrow Medical Group) in Lansing as well as Sparrow Senior Care Center where Haque performs clinic work. All patients aged 50 and above who come to do the routine annual physical check and who are currently married or cohabiting with a different-sex partner are qualified to fill out the survey. We decide to target on the patients who come to do annual physical check instead of visiting for other medical reasons because we aim to screen a relatively random sample that are more representative of the general population at those ages instead of patients with existing conditions. Flyers will be posted in multiple places to help to recruit the participants. All qualified patients will be asked during the check-in time about their interests in this study. We will provide multiple options for the participants to choose to fill in the survey: 1) take a hard copy of the questionnaire and complete it at home, and mail it back to the PI using the prepaid and self-addressed envelop; 2) complete it online or over phone at home; or 3) complete it in the clinic office with the help of a staff. To make sure it will not increase the burden of patient flow, the patients who choose to complete the questionnaire in the office will be led to a separate room at the end of their office visit to complete the survey. In order to improve the response rate, we will provide $25 dollar gift card for those who completed the survey and signed the consent form for the release of medical records. The questionnaire primarily asks about the patient's relationship with the partner and their sexual experiences in the past year as well as basic socio-demographic and some potential mechanism variables (e.g., stress, health behavior). It takes about 30-45 minutes to complete the questionnaire.

Step 2: Linking Survey Data to Medical Records. The patients who completed the questionnaires will also be asked for their consent to access to a part of their medical records. Note, we do not need to access their full medical records, but only a part of their blood test results in the annual regular check, for example LIPID panel-details, Comprehensive Metabolic Panel-details. If the patients had done more specific tests on CVD such as BNP, blood culture, Lipoprotein (a), and Pericardial Fluid Analysis, we would ask to have access to that information too.

Aims 2 and 3 will be addressed in next step by amazing the pilot data collected in Aim 1.

Step 3: Data Cleaning and Analysis. All data will be cleaned and converted to a format ready for analysis. To address Aim 2, we will ask the participants for feedback to identify ambiguities and difficult questions. We will shorten and revise the questions based on the response. We will also calculate the response rate, assess the efficiency of linking to the medical records, assess the likely success of proposed recruitment approaches, identify logistical problems, and estimate variability in outcomes to help designing a larger scale data collection for future R01 proposal. To address Aim 3, we will conduct both descriptive and multivariate regression analysis. The PI (Liu) has substantial expertise doing advanced survey data analysis.

Research Team: The research team has extensive and complementary expertise that maximizes our chances of success. Hui Liu (PI) is an associate professor of sociology at MSU. Liu is an established scholar in the areas of sexuality, intimate relationships and health. She currently receives an NIH K01 award to investigate the intersections of social and biological processes that link marriage and cardiovascular health among older adults. Donna Wang, (Co-I) is university distinguished professor of medicine at MSU, with a specific expertise on cardiovascular medicine. Liu and Wang have a history of successful collaboration for several years. Their collaboration has lead to peer reviewed publications in high impact medical sociology journals such as the Journal of Health and Social behaviors. Raza Haque (Co-I), an associate professor of family medicine at MSU, performs clinical work, geriatric assessments, and skilled nursing facility. Haque is affiliated with the Sparrow Hospital, and also performs clinical practice at the Sparrow Senior Care Center—one of the major sites for our clinical data collection. If funded, we will hire two RAs to help with the data collection and analysis.

Budget and Project Period: The study will span over a period of a year. The estimated budget is < $50,000.
References: