

As an intervention researcher, my long-term career goal is to develop, test and implement evidence-based interventions for cancer survivors and their caregivers to address unmet needs in mental health, social support and interpersonal relationships. Currently, I have three lines of research: 1) patients and caregivers' dyadic processes in mental health and communication across the cancer continuum; 2) eHealth in cancer care and digital inequality; and 3) social workers' roles in addressing service gaps and social determinants of health. My dissertation is related to my second focus, investigating young adult cancer survivors' social media use behaviors, disparities and mental health. I was one of two scholars nationally in 2020 to receive a \$40,000 grant in Oncology Social Work from the American Cancer Society to support my dissertation work.

Research Trajectory

My research tends to answer one central question: what intervention model is effective in addressing cancer survivors and their caregivers' mental health, social support and interpersonal relationship needs utilizing digital tools? From the standpoint of mechanisms of change, my work tends to understand the relationship between cancer patients and their caregivers' mental health, well-being and relationship outcomes at individual and interpersonal levels guided by the socio-ecological model. From the angle of health equity and social justice, I want to learn about the role of digital communication technology in interventions and whether eHealth interventions are closing or widening gaps in accessing quality health care services. From the implementation and policy standpoint, I am interested in what social workers' roles are in intervening and reducing health disparities in the hospital, community and telehealth settings, and how to increase the use of value-based payment model to make patient-centered care more accessible and affordable.

This research program is shaped by three unaddressed issues I observed in my prior work as a social work clinician and clinical trial research coordinator in various healthcare settings for the past 7 years. First, as the main source of tangible and emotional support, cancer caregivers carried tremendous financial and emotional burdens, which led to health and mental health problems and in turn impacts patients' health and mental health outcomes. Second, cancer survivors and caregivers have informational and social needs from a larger support network and thanks to modern communication technology, it can be realized via social media and mobile apps. However, the disparities in obtaining and understanding health information and the inequality in accessing digital communication technology could widen the gap in healthcare access and thus exacerbate inequalities in marginalized groups. Third, even though social workers are the primary providers of psychosocial oncology care, their role remains vague in many interdisciplinary teams and the value of their services for patients and families receives inadequate acknowledgment. Therefore, I developed this transdisciplinary research program at the intersection of interpersonal relationships, communication, and integrated health to address these three issues.

Dyadic Processes across the Cancer Continuum. Cancer is a disease affected not just the patients but also their families, however, whether dyadic intervention is the best intervention modality in improving cancer patients and their caregivers' mental health and relationship outcomes remains unclear. To further explore how cancer patients' and caregivers' outcomes intertwine, I investigated factors at both the intrapersonal level and dyadic level using dyadic analysis approaches. At the intrapersonal level, I examined whether cancer patients and caregivers' psychological outcomes and well-being predicted each other. Using R01 clinical trial data of patient-caregiver dyads (PI: Dr. Jennifer Steel) I collected while working as a research coordinator,

I led two studies to investigate the interdependence of cancer patients and caregivers' mental health and well-being. Using structural equation modeling, I discovered the longitudinal association and bi-directional impacts between patient and caregiver's depression, stress, sleep and quality of life. These findings led to two first-authored publications in the *Journal of Behavioral Medicine* and the *Journal of Psychosocial Oncology*. At the dyadic level, I examined dyadic coping factors and their effects on cancer patient-caregiver dyads' psychosocial outcomes. I discovered the dyadic stress communication's positive impacts on relationship quality by applying the actor-partner interdependence model to analyze the dyadic data from a breast cancer couples' coping study (PI: Dr. Chiara Acquati). I presented the findings at the 2021 American Psychosocial Oncology Society (APOS) annual conference and received the Top 10 Poster award. My dyadic work provided theoretical and clinical implications for the necessity of dyadic interventions to address cancer patients' and caregivers' psychosocial needs and the potential of incorporating caregivers in person-centered cancer care on a larger scale. Currently, I am validating an instrument of dyadic communication in intimacy and sexuality of partners caring for female cancer patients/survivors using qualitative methods (PI: Dr. Acquati). This study informs my research by extending my knowledge about dyadic communication assessment on sex and intimacy and enhances my research skills in instrument development and validation.

eHealth in Cancer Care and Digital Inequality. Family and caregiver support might not be adequate when coping with a life-threatening disease, and the internet has become an important source of informational and social support nowadays. Under the restriction of quarantine and social distancing during the pandemic, the benefits of communication technologies in connecting people became even more salient. But disparities also exist in accessing internet and digital devices and in understanding health information for at-risk populations affected by cancer. Therefore, I became curious about whether social media is an appropriate intervention tool for cancer patients and survivors and how could that impact their mental health. As a prerequisite to communicating about cancer, health literacy skills and their social determinants are worth investigating. Thus, I led a secondary data analysis study looking at the sociodemographic correlates of health information seeking, print literacy and oral literacy among cancer survivors and I found the health literacy disparities at the intersection of sex, age, race/ethnicity and socioeconomic status. The first authored manuscript was recently submitted to the *Journal of Cancer Survivorship*. I am also a co-PI with Dr. Joga Ivatory, a surgeon and associate professor at Dell Medical School at UT Austin on a preliminary study of developing a web-based social network tool for colorectal cancer survivors. I investigated the relationship between health status, eHealth literacy and preferences for using social media to connect with peer survivors. This work will extend the knowledge about the impacts of health literacy skills on social networking site use among cancer survivors and their user preferences of social networking sites.

These works and my interests in interpersonal relationships among cancer survivors at a broader level led to my three-paper dissertation focusing on social media use and mental health among young adult cancer survivors. The purpose of my dissertation is to understand 1) the determinants of social media use among young adult cancer survivors; 2) the use patterns and linkages to their mental health, specifically depression; 3) the moderating role of offline support between socioeconomic status or race/ethnicity and social media use; and 4) their motivation and resistance in different social media use behaviors. My dissertation will have important implications for the design, evaluation and implementation of social media-based interventions to address psychosocial needs of young adult cancer survivors.

Social Worker's Roles in Addressing Service Gaps and Social Determinants of Health (SDH). Working closely with my faculty mentor Dr. Barbara Jones, Associate Dean for Health Affairs at UT Austin Steve Hicks School of Social Work, and Chair of the Department of Health Social Work at Dell Medical School, I had the opportunity to be part of the whole person cancer care evaluation project to interview non-physicians at the Livestrong Cancer Institute. Learning the fact that the current billing model created obstacles for social workers to provide essential services made me wonder about where social workers fit in providing interprofessional healthcare and what barriers they have encountered. I led a scoping review of non-physicians' roles in sexual and reproductive health services for young women with cancer collaborating with Dr. Kari White from the Population Research Center at UT Austin. We found only a few studies have examined social workers' involvement in young female patients' sexual and reproductive care. The first authored manuscript is currently under review for the journal *Supportive Care in Cancer* after a minor revision. Additionally, I co-led a scoping review on collaboration between social workers and community health workers and the effectiveness of collaboration in addressing health, mental health and SDH with Dr. Lailea Noel, Assistant Professor of Oncology and Health Social Work in her Cancer Care and Health Equity Research lab at UT Austin. A second authored paper was submitted to *Health & Social Care in the Community* and is in the final review stages after minor revisions. I am also writing a scoping review alongside with Dr. Teresa Moro at Rush University on the value of social workers in care coordination in healthcare settings. This line of work will have clinical implications on where and how social workers can be more actively engaged in interdisciplinary work in addressing service gaps and SDH.

Future Research Agenda

Building upon my dissertation and bringing in my dyadic perspective, my next step is to shift focus on understanding the experience and unmet needs of caregivers for young adult cancer survivors, an understudied group in the literature. I will conduct a mixed methods study to collect pilot data including the experience, unmet needs and problem lists of caregivers for young adult patients and survivors for intervention development. I will continue to explore my first two lines of research (dyadic intervention and social media-based intervention) based on young adult cancer patients and caregivers' needs by conducting systematic reviews and meta-analysis to examine the effectiveness of these two intervention models in improving mental health, social support and relationship outcomes, while considering the intersectionality of sex, age, socioeconomic status race/ethnicity and culture. For my third line of research, I will pursue an inquiry of social workers' involvement in eHealth intervention and work on understanding the trend of change in the sociodemographic of social work workforce given the importance of ethnic matching in addressing mental health and SDH. Over time, this research agenda will contribute to understanding the diverse experiences of young adult cancer survivors and caregivers in different communities, especially for those who are underserved, and to providing evidence-based intervention to improve their wellbeing. Furthermore, my research in defining social workers' role and evaluating social work services will have policy implications on reforming the payment model to ensure services that can address SDH and enhance patient-centered care.

My research agenda fits within the funding priorities of Health People 2030 and aligns with a variety of government-funded agencies including the Centers for Disease Control (CDC) and National Cancer Institute (NCI). I will strive for external fundings from NCI, American Cancer Society, Robert Wood Johnson Foundation, Patient Centered Outcomes Research Institute, and Family Process Institute to develop, implement, and evaluate technology-based psychosocial interventions for cancer patients and caregivers that also incorporate critical SDH.