

Personal Statement
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Research

I came to ASU with a strong interest in the impact of early life adversity on physiological processes and physical health over the lifespan. This was a new and largely unexplored area, driven largely by remarkable animal models being developed at McGill University. Emerging theory suggested that early adversity led to maladaptive development of physiological stress response systems, which over time increased vulnerability to infectious diseases, cardiovascular disease, tumor growth, and cognitive decline. My early research applied this theory to young adults, and showed direct effects of parental loss and neglectful parenting on cardiovascular and hormonal (cortisol) responses to stress in adulthood, suggesting that childhood adversity can exert a long-lasting effect on vulnerability to stress-related illness. The findings led me to question the mechanisms behind the effects, the pathways by which early social experiences alter developing physiology, and potential points of intervention with vulnerable children.

During my five years at ASU, I have been developing a model to guide my research, which proposes both neurobiological “hardwiring” resulting from stressful early life experiences, but also recognizes that humans have more complex emotional and cognitive capacities, which can modulate physiological responses (Luecken & Lemery, 2004). A 5-year grant from the American Heart Association funded a project evaluating young adults from bereaved, divorced, or married families. Initial results provide support for cognitive and emotional processes as modulators of physiological stress responses. For example, high family conflict was associated with hostility, anxiety, and avoidant coping, which predicted poor blood pressure recovery following stress (Luecken, Rodriguez, & Appelhans, 2005). One innovative component of this project involved patterns of information-processing associated with vulnerability to mood disorders. Using a computerized attention task, we found that childhood abuse was associated with hypervigilance towards threat cues in adulthood (Luecken & Appelhans, 2005), which may predispose an individual to exaggerated physiological responses to ambiguous daily life events (Luecken, Appelhans, Kraft, & Brown, in press). My next step was to further develop the theory that the physiological effects of early adversity can be partially explained by attempts to cope with stress and its emotional impact. I received an R03 grant from NIH to evaluate “real-time” cognitive, emotional, and physiological responses to stress. Participants from high or low conflict families were videotaped during a simulated high-stress interaction. My graduate students and I are in the process of coding the videotapes to reflect the range, flexibility, and adaptiveness of coping attempts, as well as emotional and non-verbal responses to the task. An exciting implication of this project is that if cognitive or emotional pathways mediate physiological dysregulation associated with early adversity, then we may be able to intervene long after the experience by teaching adaptive coping skills and emotion regulation.

In the last few years, my research focus has expanded in several exciting new directions. First, I have been moving towards taking my research into the community. I began this process by studying ambulatory blood pressure in young adults measured every 30-mins for 24 hours. A number of interesting findings are emerging. For example, reports of early family adversity are associated with more frequent reports of stress and negative moods throughout the day, which in turn predict elevated blood pressure. I have submitted a grant proposal to NIH that will further evaluate the impact of early life experiences on responses to daily life challenges in adulthood. The proposal uses state-of-the-art methods to measure physiological and emotional processes. In

collaboration with the Maricopa County Department of Public Health, I am leading a project that examines the impact of maternal prenatal risk and resilience resources on the health of newborns. We are interviewing 540 new mothers at hospitals in Maryvale and South Phoenix. The women are all recipients of public aid, and reside in areas characterized by high infant mortality, low income, poor education, and a high percentage of recent immigrants. This exciting study is empowered by an alliance of community leaders, health providers, and local non-profit agencies, and truly demonstrates what communities and universities are capable of when they pool resources towards promoting community resilience. In fact, I was honored by a request to speak about this project at St. Luke's Health Initiative's "Health in a New Key" Kick-off conference as an "elegant example of how the resources of the university can be used to assist communities in their work" (Jane Pearson, Associate Director SLHI). Phase II and III of the study are in the planning stages, and will develop and implement interventions to improve birth outcomes in this vulnerable population.

A related new direction for my research involves a focus on cultural and socioeconomic factors that may uniquely shape the relation between early experiences and lifespan health. The cultural and socioeconomic diversity that exists in Phoenix makes it an ideal location for the study of these processes. The postpartum study mentioned above is powerful starting point as 90% of the women are Hispanic and 75% are Spanish-speaking. Plans are underway to continue to follow these families after they leave the hospital in order to more fully understand the pathways by which family relationships influence developing physiology.

A third significant new direction involves a focus on resilience and health-protective functions of early life relationships. In every study of severe stress, a subset of children manage to grow into strong, competent adults despite facing overwhelming obstacles. My association with the Resilience Solutions group at ASU and the recent funding of our R01 grant has strengthened my commitment to identifying processes that account for positive long-term health outcomes in the face of adversity. In my lab we have found that young adults who experienced early parental loss and reported a strong relationship with the surviving parent had less depression, more adaptive blood pressure stress responses, and lower daily reports of stress than those from intact families with strong relationships. These exciting results suggest that positive parenting in the face of severe stress may uniquely shape adaptive self-regulatory ability, thus contributing to resilience in the face of later life challenges. The neonatal project described above is also unique in its focus on identifying individual and community factors that contribute to the birth of *healthy* babies despite considerable traditional risk factors (e.g., poverty).

Perhaps most exciting for me is the potential this research has for improving the lifespan health of children exposed to uncontrollable traumatic events or chronic family or community adversity. The model I have been developing suggests a number of potential areas for intervention during childhood, including intervening to promote the development of resilience resources. I couldn't be more pleased with the direction my research has taken at ASU. The diversity of talent and expertise represented throughout ASU has provided the opportunity for unique collaborations both within and outside of my department. For example, I've been collaborating with the Prevention Intervention Research Center (PIRC) by the addition of physiological outcome measures to their longitudinal studies of children of divorced or bereaved families. I'm also serving as a consultant for projects led by faculty in Nursing, Kinesiology, and Communications. These opportunities have also benefited my own individual research by exposing me to broader and more complex ways of conceptualizing the lifespan processes I study.

Teaching

The mix of undergraduate courses, graduate courses, and mentoring responsibilities I've undertaken at ASU has greatly contributed to my growth as a teacher. The undergraduate courses I've taught (e.g., Health Psychology, Introduction to Clinical Psychology) allow me to fuse my teaching, research, and clinical skills. For example, I integrate current research findings into my lectures, or provide real examples from my clinical experience. I put an emphasis on critical thinking skills and the ability to communicate ideas effectively. To that end, I often assign research papers, personal reflection papers, weekly journals, and class presentations. My exams include both multiple-choice and short essay questions, which allow a range of formats for students with different strengths to express what they've learned. I am particularly proud of my development of the course PGS270 Psychology of Adjustment – a course for non-majors. This course has evolved over several semesters, each time moving towards being more experiential and hopefully, more meaningful to the students. Of all the courses I've taught, I tend to receive the most thank-you notes from students who have taken Psychology of Adjustment.

An equally important aspect of teaching is mentoring. My grants have enabled me to increase the number of graduate students I mentor. I've been fortunate to mentor some outstanding students, and I am very proud of their accomplishments during their graduate years. My first two students (Jessica Tartaro and Brad Appelhans) have developed impressive CV's that include both first author and contributing author credits. Brad plans to defend his dissertation at the beginning of his fifth year, and I expect a number of excellent publications to follow from his innovative research on heart rate variability and chronic pain. A third student, Adam McCray, is also expected to defend his dissertation in 2005. Both received their first choices for internships, and have already been offered postdoctoral positions. My newest student (Amy Kraft) already shows strong potential after submitting an abstract in her first semester to the Society for Behavioral Medicine's conference, for which she received the prestigious "Meritorious Student Research" award.

I'm equally proud of the accomplishments of the undergraduate honors students I've mentored. Erik Huntsinger successfully published his honors thesis in a high quality journal, and I regularly receive requests from others who wish to replicate his study. LaMista Johnson conducted a complex analysis of ambulatory blood pressure data, which contributed to her acceptance at several of the top health psychology graduate programs in the nation. For the last two years, I've co-mentored honors students with behavioral neuroscientist Dr. Cheryl Conrad, which allows us to test animal models of the long-term physiological and cognitive correlates of early experiences. Our first student, Rudy Bellani, studied the relations of juvenile anxiety to the extent of physiological and cognitive damage caused by chronic stress in adulthood, and currently has a manuscript of his results "in press" at a prestigious journal. Our second student, Tiffany Gearhart, will be studying how brief separations from the mother exert long-term physiological effects on rat pups. Classic research findings show that brief separations have long-term beneficial effects on the health of pups, but Tiffany hypothesizes that if the mother is stressed during those separations, the long-term effects will be negative (due to impaired parenting). I am thankful for the opportunity to collaborate with Dr. Conrad and look forward to future collaborations.

Service

Just as my research program has grown over the last 5 years, my commitment to service at the departmental, university, and professional level has shown equal growth. A primary way that I can be of service involves my dedication to the promotion and development of health

psychology at ASU. For the last three years, I have served as the coordinator of the Health Psychology Alliance (HPA), which grew from a small group of psychologists to include researchers from many different departments on campus (e.g., nursing, exercise science, communications, biology, etc). The group's goal is to share ideas and promote multidisciplinary research, and a number of research collaborations have grown out of this group. I also contribute by supervising the psychology clinic's Health Team, volunteering to provide supervision to an ongoing Medical Symptoms therapy groups, and developing graduate seminars and practica relevant to health issues. My community service also tends to center around health issues. I am a member of the Governor's Commission on the Health Status of Women and Families in Arizona, and the Maricopa County Alliance for Innovations in Health Care (both groups are dedicated to improving health and health care for low income women and children).

As a licensed clinical psychologist, each year I have provided supervision and guidance for our graduate students as they apply for clinical predoctoral internships. This is typically a high-anxiety time for our students given the low number of internship slots available nationwide. I have developed a number of materials to guide them, and I spend considerable time each fall providing feedback on their required essays, and guiding them in selecting appropriate internships. In the winter, I prepare them for interviews by conducting practice interviews. Our program prides itself on the success of our students in the internship process, and each year I breathe a sigh of relief as one more group successfully makes the transition.

I am also proud of my contributions towards funding graduate students during my time so far at ASU. Thanks to my ongoing grant funding, I have funded at least one grad student each semester and summer since spring, 2001. In most semesters I funded two graduate students and one undergraduate research technician, and last fall I funded *four* graduate students (two of whom are mentored by other faculty). My research program clearly benefits from student involvement, and I greatly enjoy having a busy and productive group of students in my lab.

My service to the profession has dramatically increased over the years as well. I am frequently called on to review manuscripts for a wide variety of journals, and I currently serve on the editorial board for the *Journal of Behavioral Medicine*. I also serve on the Education and Training Committee for Division 38 (Health Psychology) of the American Psychological Association. I have been asked to serve on three grant review panels, which is a great learning experience and chance to meet experts in my field. The professional service I am recently most excited about is a contract I received with Sage Publications to serve as the editor for a book of physiological research methods. Dr. Linda Gallo at San Diego State University has agreed to serve as co-editor. We are quite excited about this project, and believe it will serve a real need within the field for more standardized and methodologically sound measurement of physiological indices relevant to psychology and related fields. We expect the book to be published in 2007.

If I were to sum up my years at ASU so far, I would say it has been an exciting period of rapid growth beyond even my own expectations. I chose to come to ASU because I sensed the potential for an incredible array of transdisciplinary opportunities inherent in the depth and breadth of expertise at ASU, and I have not been disappointed. Combined with financial support of the national grant system, I look forward to further development of a program of research that not only contributes to academic interests, but also can result in practical real-life applications to improve the health and well-being of vulnerable segments of the population.