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commentary

Expect the Unexpected: Researching Pregnant Women's Social Supports

—Amy Ma (Edited by Laura Jarvis)

I have always been attracted to the topic of stress, especially since I am the type of person who tends to become anxious about minute details in life. Stress has left me constantly vulnerable to colds throughout the years, but I never fully understood why until I learned more about the physiology of stress and its chemical effects on my body and my health. In some of my classes, I learned how the effects of stress can even begin prenatally. If a woman carrying a child is not properly managing her stress levels, the hormones released by her body may also directly affect the infant inside her. This taught me how entirely dependent babies in utero are on the well-being of their mothers.

I wanted to dig a little deeper into the effects of stress and discovered that the Hamel Center offers grants for undergraduate summer research (Summer Undergraduate Research Fellowship). I learned that Dr. Barbara Prudhomme White of UNH's Occupational Therapy Department is also interested in the topic of stress. She graciously offered me the opportunity to help her analyze data from an earlier study she completed on the effects that stress-reducing activities had on stressed pregnant women.

My research involved collapsing (grouping and combining similar questions into main categories) the raw data and creating new variables, particularly in regard to social and interpersonal relationship information. While I was responsible for only a portion of the entire research process, there were still many unforeseen challenges and a few unexpected results.



Amy Ma, with her mentor, Dr. White

The Study

In 2008, Dr. White, Dr. Robert Drugan in Psychology and David Townson in Molecular, Cellular and Biomedical Sciences collaborated on a study looking at the perception of stress and its behavioral and social implications, as well as the physiological effects that stress had on pregnant mothers and their unborn fetuses. They tracked the physical and mental health of thirteen stressed, pregnant women at each trimester of their pregnancies and until their babies were two months old ("fourth trimester"). The objective of this study was to discover if there was a correlation between poorly managed chronic stress in pregnant women, and higher than typical cortisol patterns in the women and their two-month old infants. Cortisol is a hormone that is released in the body in response to stress.

This study also looked at whether or not occupation-based therapy would affect the participants' ability to cope better with their everyday stress. Occupational therapy is a form of rehabilitation where therapists implement interventions that will help their clients get back to specific "occupations," meaningful activities that make up one's daily life. Often, the intervention uses the actual occupations in a modified form, combining physical and psychological interventions with the goal of holistically restoring and maintaining the client's well-being. I really enjoy this aspect of occupational therapy

because I believe that being healthy is not necessarily defined by being free from a physical ailment. We have a psychological connection to the things we do, and our occupations carry a lot of weight in our lives and in our happiness.

For this study, participants were divided into two groups: an intervention group and a control group, the latter of which did not engage in occupation-based therapy. Since occupational therapy is client focused (individualized and personalized therapy), the occupation-based interventions were dependent on what was relaxing to each client. For one, an art kit allowed a woman to relax through drawing. For another, a gym membership allowed her to exercise and really enjoy herself. Each intervention was stress reducing and meaningful to the participant's choice. The data indicating whether their self-chosen interventions were helpful had been collected and completed, but the results of this study had yet to be analyzed.

My Contribution

My research question became: did engaging in stress-relieving activities correlate with improved social relationships for these women? I focused on the significance of these women's social relationships (family, friends, coworkers etc.) to their lives and how these networks and relationships may have impacted their moods and perceived health. Potentially, the quality of their relationships could afford these women a healthy outlet for their stress, allowing them to manage their anxiety and keep their stress under control. A benefit of well-managed stress could be improved mood, which would provide the opportunity for improved social connections.

The raw data, which came from questionnaires, was already entered into a database similar to Excel. I was thankful for this because I could go straight into organizing, summarizing and collapsing the data to gain a better understanding of what these women's lives were like. From here, I was able to create graphs of the data trends, which was very exciting for me. It was nice to have visual images of the results. From this point, I could finally see how the study affected the women.

In addition to having their cortisol levels measured during each trimester and the cortisol levels of their children measured at two months of age, the participants kept journals and corresponded by e-mail with the research assistants. My mentor and I decided that I would not be working with the cortisol levels of the mothers and infants, due to the complexity that they would add to the project. I was not equipped with enough knowledge or time to analyze them properly.

I did take on the task of combing through the rest of the data, though. Having to read through the narratives was tedious and time consuming. There were numerous e-mails and journals exchanged between each participant and the research assistants, and I had to make sense of it all. The qualitative data gave me a lot of insight into the lives of these women that I otherwise would not have gotten from the questionnaires alone. Some of their stories left me grinning and happy for them, while others were devastating. Reading about their pregnancies in their journals gave me the feeling that I was on the journey with them.

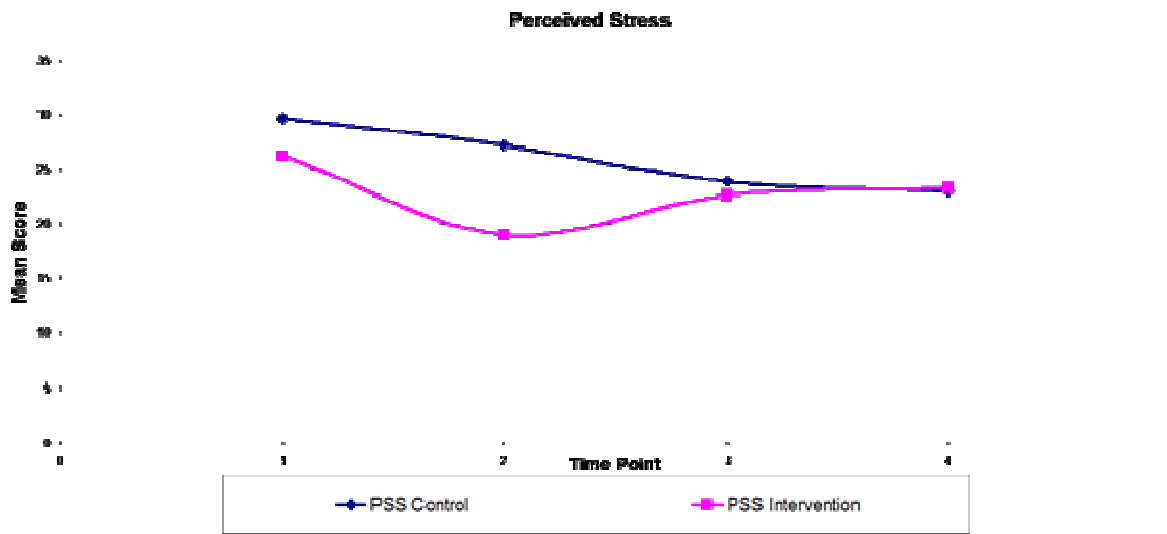
A disadvantage of working on just a portion of Dr. White's study was that I had no contact with the participants. There were a handful of pointed questions that I would have asked the women about their relationships. This left me feeling less attached to the project than if I had recruited them myself. I recognized that these were real women, and it was interesting to read through their narratives and e-mails. However, I feel that the data analysis would have felt less dry if I had been the one to contact the women.

Unexpected Surprises

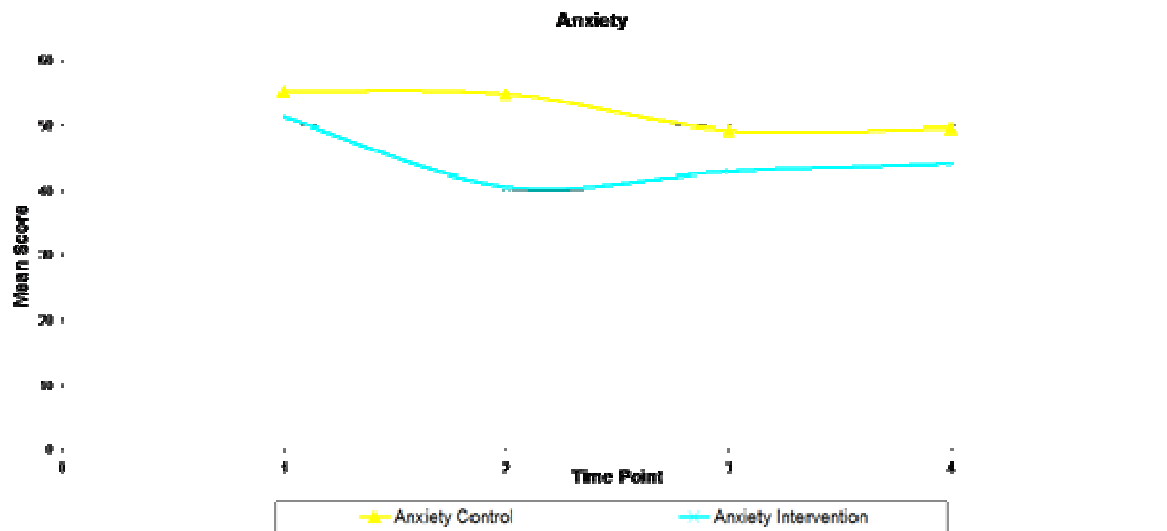
Many other studies have shown a relationship between perceived quality of social support and stress levels (Rini, Schetter, Hobel, Glynn, & Sandman, 2006). For many, as social supports increase, perceived stress decreases. In my study, there was no data confirming this trend. Social-support quality appeared to decrease for both the intervention and control groups, with the intervention group experiencing a greater decrease. Narrative data did not provide an explanation for this finding, which led me to believe that based on this study, engaging in stress-relieving activities has little impact on perceived social supports. As anti-climatic as that discovery was for me, I know that noncorrelating data is the end result of many research projects.

This questionnaires and narrative data did show, however, that occupation-based interventions were effective in managing stress. The intervention group experienced a significant decrease in perceived stress and anxiety in the second trimester

when compared to the control group's stress levels during that same time period. Even though differences between the groups were not significant at other time points, the mean for perceived stress and anxiety scores from the intervention group were generally lower than for the control.



Graph showing the effect of the OT intervention on perceived stress



Graph showing similar effects of the OT intervention on state and trait anxiety

Graph References: Cohen, S; Kamarck, T., & Memmelstein, R. (1983). Global measure of perceived stress. *Journal of Health and Social Behavior* 24, 386-396. Spielberger, C.D. (1977). *State-Trait Inventory for Adults*. Redwood City, CA: Mind Garden.

In further analysis, it was discovered that four out of the six (66.7%) intervention participants were raising another child of their own during this study. Conversely, all of the participants in the control group were experiencing their first pregnancies and did not have the additional stress of caring for dependents. That most of the intervention mothers had children and more responsibilities than the majority of the control group might have contributed to the lack of statistical differences in trimesters, other than just the second trimester. Perhaps if we had looked at a participant pool where all the mothers were experiencing their first pregnancies, then maybe the third and fourth trimesters would have also shown a statistically significant difference. I did feel good knowing that I had an answer to my research question, even though the results were not concrete.

Reflections

I am grateful to have worked with Dr. White for my first research experience. Although I worked on only a segment of the research process, I am still quite humbled by the amount of work and dedication that goes into the analysis of results. Even at the moments I was not physically working on research this past summer, my mind was actively thinking about it, though I would not be aware of that fact until the end of the day when I was mentally exhausted. It was exciting when information started to string together and the trend lines on the graphs began to tell a piece of these women's stories. It gave me pride to know that I contributed to something academic and experimental with the potential implication of influencing how pregnant women, and those who care about them, attend to stress levels during pregnancy and in the growth and development of the child.

This experience has left me with a nugget of insight as to how I want to enter my occupational therapy profession, specifically hand therapy. I am interested in looking at how different intervention settings affect the stress and healing period of acute hand injuries and the clients' abilities to return to their former occupations. With this research project under my belt, I am less intimidated to start a project of my own in its entirety this coming summer.

An endless amount of "thank-yous" to Dr. White for her patience and support as I learned and grew more than I ever thought I could as an academic.

References

Rini, C., Schetter, C., Hobel, C. J., Glynn, L. M., & Sandman, C. A. (2006). Effective social support: Antecedents and consequences of partner support during pregnancy. *Personal Relationships*, 13, 207-229. doi:10.1111/j.1475-6811.2006.00114.x

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Author Bio

Dover, New Hampshire, native Amy Ma is a junior occupational therapy major at UNH. In her pursuit of a research opportunity, Ma was advised by the Hamel Center to apply for a SURF Grant to fund a summer project with Barbara Prudhomme White. Even though she was new to the world of research, Amy dove in with enthusiasm and found out that the research process gave her a sense of accomplishment, albeit with much tedium along the way. After this discovery, she decided to share her research process with a wider audience through Inquiry. Though she plans to become a hand therapist after graduation, she says this experience has "demystified" research for her and she would not rule out graduate school in the future.

Mentor Bio

As an associate professor of occupational therapy and the faculty director of the UNH Discovery Program, Barbara Prudhomme White is a veteran mentor, guiding students through the McNair Program and now through Inquiry. Currently in her twelfth year at UNH, Dr. White's research focuses on stress. Working with Amy on her article was fun for Dr. White as the two openly exchanged ideas about the project. Bringing the subject to a level of general comprehension "helps students hone their writing," she says. Perhaps most importantly, as White has seen in Amy and other mentees, undergraduate research gives students the opportunity to explore their field outside the classroom.