The role and efficacy of native paraprofessional home visitors in reducing behavioral health disparities in indigenous populations
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SUMMARY

Indigenous populations worldwide face the largest behavioral health disparities in the world, and formidable resource and cultural barriers to professional care within the domain of behavioral health. While there is a clear rationale for developing community health worker or “paraprofessional” intervention models to address behavioral health disparities in low resource settings, over the past 40 years, research examining the use of paraprofessionals to address behavioral health disparities has produced mixed results regarding intervention effectiveness and, thus, failed to impact broad-based health policy or health system innovations.

Behavioral health is an interdisciplinary term used to define the health domain that covers the complex relationship between human behavior and human health. Behavioral science is concerned with addressing lifestyle factors that are associated with the occurrence of illness. Lifestyle or behavioral-health related illness – such as cancer, heart disease, obesity, type 2 diabetes and substance abuse – are among the fast-growing health problems in the world. Current systems of care that address behavioral health problems include prevention programs, counseling and therapy, psychiatric services, emergency and crisis intervention, and residential or foster care services. At present, these systems are primarily managed by professionally trained therapists or clinicians.

This book – a doctoral dissertation – examines a paraprofessional approach to promoting behavioral health among indigenous populations specifically within American Indian communities in rural reservation lands in the United States (US). In these communities, behavioral health issues – such as substance abuse, intentional and unintentional injuries, conduct problems and high-risk sex – all peak in adolescence, leading to a high burden of years of productive life lost. Negative behavioral health trajectories for American Indian youth are compounded by high rates of teen pregnancy – and the stressors that teen parenting adds to teen parents’ and their children’s behavioral risks – which ultimately perpetuate intergenerational cycles of poor behavioral health outcomes. Given the limited number of professionally trained behavioral health interventionists within American Indian communities, behavioral scientists from Johns Hopkins Center for American Indian Health conducted a line of research to evaluate the use of indigenous paraprofessional home visitors to impact American Indian behavioral health outcomes, focusing on teen mothers and their children. Home-based intervention was selected for: 1) its evidence of impact on maternal and child behavioral outcomes, albeit with nurse home visitors and not paraprofessionals (see Chapter 1) and 2) the cultural relevance and acceptance of home- and family-based intervention by American Indian stakeholders participating in this research.

This book reports on a series of three randomized controlled trials of a home-visiting intervention, called “Family Spirit,” administered by indigenous paraprofessionals to American Indian teen mothers to prevent maternal and child behavioral health problems. It includes a discussion of the intervention’s underlying theoretical model; the evaluation methods and findings; the theoretical and clinical relevance of the results; and recommendations for future research and intervention approaches.

Chapter 1 provides background on: 1) American Indian populations; 2) the behavioral health problems and contextual opportunities being addressed by the line of research reported in this dissertation; 3) a review of the relevant literature; 4) a general description of the intervention approach – including the paraprofessional provider rationale and the theoretical framework upon which the intervention model is based; 5) an overview of the behavioral health intervention studies presented within; and 6) a detailed outline of the remaining dissertation chapters.

Chapter 2 describes the methods and results of the initial pilot randomized controlled trial of the Family Spirit paraprofessional delivered home-visiting intervention with 53 participating American Indian teen mothers and their offspring from pregnancy to 6 months postpartum. The main research question addresses the impact of the paraprofessional delivered home-visiting intervention on teen mother’s child care knowledge, skills, and involvement from baseline at 28 weeks gestation to 6 months postpartum. The outcome measures were childcare knowledge, skills and involvement...
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among the mothers, but the children were too young to assess infant behavioral outcomes. Mothers in the intervention group had significantly higher parent knowledge scores at 2 and 6 months postpartum compared to their controls. They also scored significantly higher on maternal involvement scales at 2 months postpartum, and scores approached significance at 6 months postpartum. There were no between-group differences in child care skills.

Chapter 3 reports results of the second randomized controlled trial of the Family Spirit intervention with 167 participating American Indian teen mothers and their offspring from early pregnancy to 12 months postpartum. The longer intervention and study period allowed the research team to initiate child behavior outcome measures at the first developmentally appropriate time point: at one year of age. In addition, it allowed the study team to track maternal psychosocial outcomes as the teens transitioned back to normative social and behavioral routines after recovery from child delivery. The central research question was to assess the impact of the paraprofessional-delivered home-visiting intervention on teen mothers’ parenting knowledge and involvement. The secondary objective was to measure the impact on children’s emotional and behavioral outcomes at one year of age, and on mother’s psychosocial outcomes at one year postpartum, including stress, social support, depression and substance use. Participants were mostly teenaged, first-time, unmarried mothers living in reservation communities. At 6 and 12 months postpartum, intervention mothers compared with control mothers had greater parenting knowledge gains. At 12 months postpartum, intervention mothers reported their infants to have significantly lower scores on the externalizing domain and less separation distress in the internalizing domain. This study did not find between-group differences for maternal involvement, home environment, or mothers’ stress, social support, depression, nor for substance use.

Chapter 4 describes the theoretical basis and study approach for the third and largest randomized controlled trial of the Family Spirit intervention with n=322 mothers and their children followed from pregnancy to 3 years postpartum. First, it provides in-depth information on the community-based participatory research process that shaped the Family Spirit intervention
design and successive evaluations. Next, it provides detail on the Family Spirit intervention structure, content and theoretical design. Finally, baseline data are reported and characterize the constellation of risks for participating mothers, and by extension, for their offspring. At enrollment (between 28-32 weeks gestation), participants were young (mean age=18.1 years), predominantly primiparous, unmarried, and challenged by poverty, residential instability and low educational attainment. Previous lifetime and pregnancy drug use were ~2-4 times higher and ~5-6 times higher, respectively, than other US racial or ethnic groups. Baseline characteristics were evenly distributed between trial arms, except for higher pregnancy substance use, lifetime cigarette use and depressive symptoms among intervention mothers. The chapter concludes by articulating a clear need among the targeted mothers for interventions like Family Spirit to break the cycle of behavioral health disparities in American Indian youth.

Chapter 5 employs a baseline analysis of Trial 3’s data to explore correlates of drug use within the sample of n=322 participating expectant mothers, including socio-demographic, familial, cultural and lifestyle risk factors. Consistent with the theoretical model and the behavioral target of the Family Spirit intervention, the primary aim of this baseline analysis was to investigate relationships between drug use and expectant mothers’ family of origin functioning. We hypothesized that: 1) mothers who reported higher drug use would report lower family functioning; 2) stronger affinity with traditional values would correlate with more positive family functioning and lower drug use; and 3) negative demographic factors could exacerbate poor family functioning and ultimately affect mothers’ capacity for positive parenting if not addressed. Results showed that mothers who reported lifetime and pregnancy substance use also reported more family dysfunction in their family of origin. Further, mothers with stronger traditional cultural identity had lower lifetime and pregnancy drug use. Residential instability was the primary demographic factor correlated with more lifetime and pregnancy drug use.

Chapter 6 reports the one-year postpartum outcomes from the third randomized controlled trial in which mothers and their children were intervened with and assessed from pregnancy until 3 years postpartum.
Study aims were to assess intervention impact on: 1) parenting knowledge, self-efficacy, and competence; 2) maternal psychosocial and behavioral risks (drug and alcohol use, depression, conduct problems) that could impede parenting; and 3) infant internalizing and externalizing outcomes. Primary outcome measures included parenting knowledge, self-efficacy and parenting behaviors; maternal externalizing and internalizing outcomes; and children’s internalizing and externalizing outcomes. At 12 months postpartum, mothers in the intervention group, compared with the control group, had significantly greater parenting knowledge, parenting self-efficacy, and home safety attitudes and fewer externalizing behaviors, and their children had fewer externalizing problems. In a subsample of mothers with any lifetime substance use at baseline (N=285; 88.5%), children in the intervention group had fewer externalizing and dysregulation problems than those in the standard care group, and fewer scored in the clinically “at risk” range (≤10th percentile) for externalizing and internalizing problems. No between-group differences were observed for outcomes measured by the Home Observation for Measurement of the Environment scale. The third study employed more rigorous research methods than the previous two trials (Chapters 2 and 3), including use of blinded independent evaluators and novel attrition prevention and sample maintenance strategies. The discussion provides further details about the hypothesized mechanism of therapeutic effect of the intervention and the clinical relevance of the findings. The intervention’s therapeutic effect is hypothesized to operate through one-on-one teaching of highly structured content by a knowledgeable, empathic Native home visitor. Home visitors’ success in developing a warm, professional relationship is viewed as key to retaining and motivating participants to trust and learn from the curriculum over the long intervention period. In communities where there have been deep-seated cultural barriers to clinical care and education, a local Native home educator may be a particularly effective behavior change agent. In terms of clinical relevance, research outcomes support that home visiting by paraprofessionals can address behavioral health disparities associated with teen pregnancy and drug use by supplementing routine prenatal and well-baby care with adjunct, targeted parenting education – particularly important in settings with large health access barriers. Evidence from the trial suggests that the Family Spirit intervention could move children in high-risk settings out of clinically meaningful risk for early child behavior problems, potentially improving the communities’ long-term public health and economic status. Findings also corroborate past evidence that home-visiting interventions may be most critical for young mothers in greatest need. In American Indian and other settings with high endemic rates of substance use, screening for early initiation and pregnancy-related substance abuse could be used to identify mothers and children who could benefit most from the Family Spirit or similarly targeted interventions.
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Chapter 7 presents a summary and comments on a recent prospective epidemiological study documenting a behavioral and “mental health crisis” within indigenous North American communities. The findings from the first two paraprofessional-delivered intervention trials (Chapters 2 and 3) are used to propose indigenous paraprofessional intervention models in American Indian and other indigenous mental health systems to address the high rates of behavioral and mental health disparities and structural, cultural and resource barriers to clinical mental and behavioral health treatment. In American Indian and other indigenous settings, paraprofessional-delivered interventions that focus on assessment, education, family-based prevention and case management hold particular promise in the mental health service domain. This recommended strategy is consistent with the evidence base and aligns with indigenous concepts of mental health and local cultural strengths.

The concluding Chapter 8 summarizes the conceptual insights and empirical findings from the three trials and discusses the methodological strengths and limitations of the research. Implications of the study methods and results for general practice are reviewed, with a particular focus on relevance to indigenous settings worldwide. In terms of study methods, the randomized intervention trials represent a breakthrough in community-based participatory science in the behavioral health field with indigenous communities. A long history of research exploitation and distrust have diminished opportunities for randomized controlled intervention trials in indigenous communities, especially those targeting culturally and emotionally sensitive topic areas – such as parenting, substance abuse risk, and related behavior problems. The positive outcomes of these trials, including the employment of Native paraprofessionals as interventionists and independent evaluators, and the
usefulness and relevance of the results to indigenous communities (which shoulder an unrivalled burden of behavioral health disparities) has potential to advance important lines of behavioral science for and by indigenous communities. Regarding the generalizability of results, the data provide novel evidence that indigenous paraprofessionals can produce measurable impacts using common and standardized metrics on targeted early maternal and child behavior risks that predict improved behavioral health trajectories for mothers and children in high-risk settings. Because indigenous settings worldwide share similar or worse behavioral health disparities and human resource deficits (lack of trained professionals) as American Indian communities, the intervention approach begs to be tested in other relevant global settings. Further, two of the randomized controlled trials (see Chapters 3 and 6) provide evidence of intervention impact on children’s behavioral outcomes at 12 months postpartum, the earliest developmental time point any home-visiting trial has shown emotional and behavioral differences in children. In addition, children of mothers who were most at-risk at baseline (i.e., early initiation of and frequent substance use) benefitted most. This finding signals that effective parent training may buffer high-risk mothers’ offspring from urgent intergenerational behavioral health risks. It also provides evidence that we have new important measurement tools to assess short-term impacts, critical in low resource settings that may have limited funds for longer studies. The final chapter concludes with recommendations and directions for future research. Four key directions include: 1) a larger scale effectiveness trial over a longer study period, incorporating elements from the emerging field of implementation science to study methods to promote sustainable uptake, adoption, and implementation; 2) a cost-effectiveness analysis of the paraprofessional home-visiting approach; 3) testing a modularized intervention and research design approach in follow on studies – given the long duration of the Family Spirit home-visiting intervention and the opportunity to address the unique individual needs of enrolled mothers; and 4) advocacy efforts to promote the role of paraprofessionals worldwide in behavioral and mental health promotion.

This book demonstrates that the role and efficacy of American Indian paraprofessional home visitors to improve behavioral health trajectories of children and families in rural, underserved American Indian settings may
have generalizability to indigenous populations across the globe. These findings may also have import to other disadvantaged populations in inner cities and rural communities worldwide who suffer low socioeconomic status and a history of racism or unequal economic, social and educational opportunity that drive multi-generational cycles of behavioral health disparities. Given the rising tide of behavioral health problems across the globe, culturally relevant health systems innovations are needed now. Paraprofessional intervention models that employ locally trained community members is a promising strategy that deserves the combined attention of scientists and policy makers.