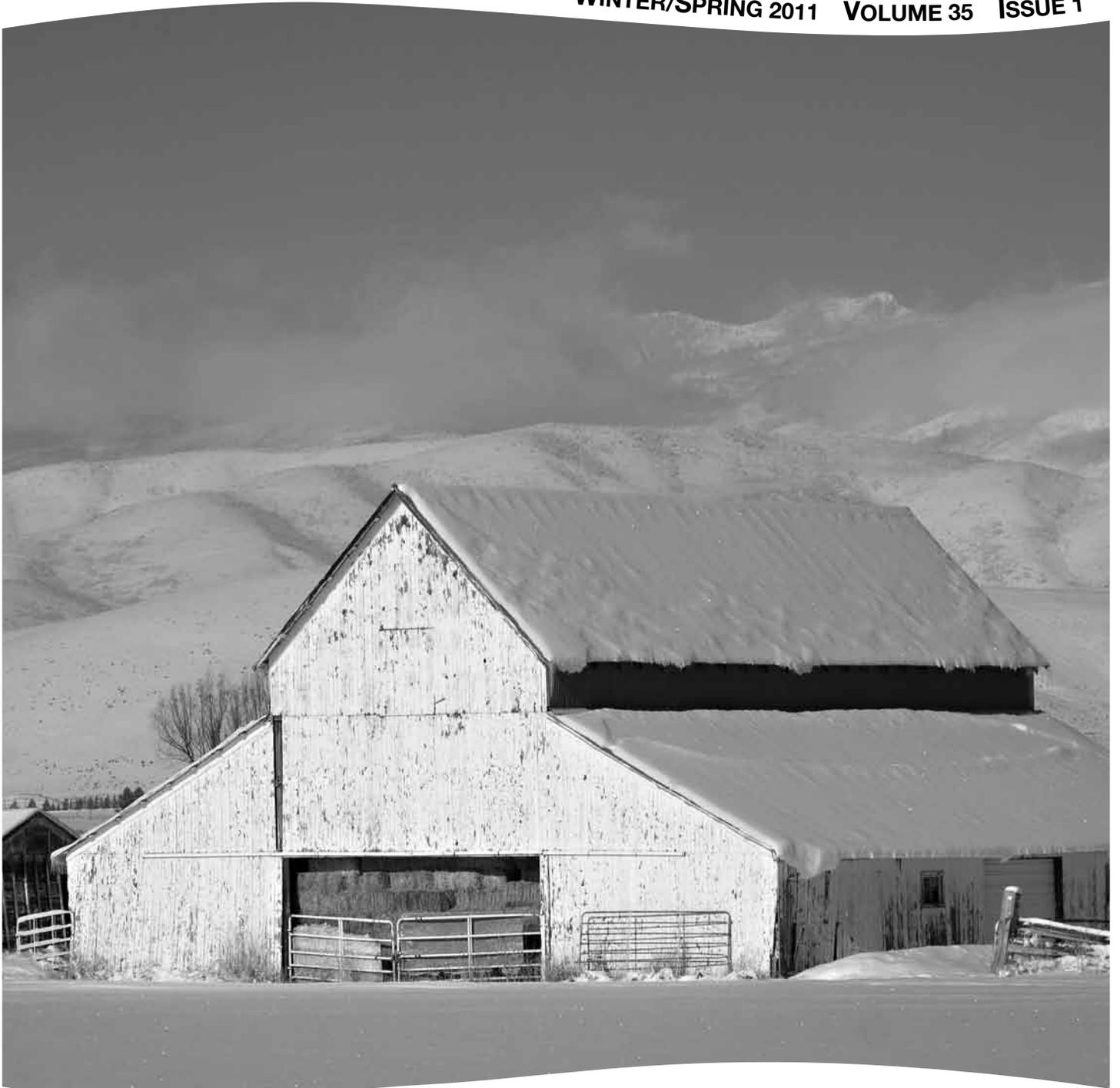


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- February 15th for the Winter/Spring Issue.
- August 15th for the Summer/Fall Issue.

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CHALLENGES AND OPPORTUNITIES

Editor's Letter

Greetings NARMH members and Journal of Rural Mental Health recipients! As 2010 comes to a close, we are pleased to celebrate another year of sharing research and programmatic information that is relevant for rural behavioral health researchers, providers, consumers, administrators, and policy makers. I am hopeful as I look forward to a new year amidst the backdrop of health care reform, the current state of the economy, and the trend toward integrating mental health and primary care, that this journal will continue to serve as an important medium for disseminating meaningful and usable information about how rural behavioral health fits into these movements and actualities.

I would like to introduce myself as the new managing editor of the Journal of Rural Mental Health and to introduce my co-editor, Tamara DeHay, Ph.D., in this endeavor. Both Tamie and I work for the Western Interstate Commission for Higher Education (WICHE) Mental Health Program. We look forward to

bringing you a journal that is respected in the field of behavioral health broadly. Although the journal's title implies a focus on "mental health", we are committed to representing within our publication the full spectrum of behavioral health including substance abuse, and addressing the related issues within the context of rural communities.

Stay tuned for some innovation in our article submission process as well as online journal access in 2011. If you are interested in being included in our peer-review panel or if you have ideas for special issues, please send us an email (see contact information below). Happy holidays and cheers to a new year!

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NARMH BOARD OF DIRECTORS ELECTION ANNOUNCEMENT

NARMH is currently soliciting committed individuals to run for the Board of Directors. Terms of office are for three years. To serve on the NARMH Board, an individual must meet several requirements. These include:

1. You must be a member in good standing for a minimum of one year prior to the date you would take office. However, candidates who do not meet the criteria may petition the Board for an exception. An exception may be granted based upon a majority vote of the Executive Committee.
2. You must be willing to travel, at your own expense, to the two Board of Director's meetings each year. The winter meeting occurs over a three day period and is typically held in Washington DC. The summer Board Meeting occurs as part of the annual conference.
3. You must be willing to devote time each week, to NARMH activities. These activities include, but may not be limited to committee assignments, special projects, writing articles, doing work on-line.
4. You should have access to e-mail since most ongoing NARMH business is conducted on-line.

If you wish to submit your name for the NARMH Board of Directors, please email info@narmh.org and mail the following information to the NARMH Office no later than April 15, 2011:

- 1) Name, address, phone, fax and email.
- 2) Brief biographical sketch and statement of what you feel you can bring to the organization as a board member (not to exceed 100 words).

If you have any questions about the positions, the commitment or time required to serve in this capacity, please contact Linda Werlein at 830.258.5419 or call the NARMH office at 320.202.1820.



Rural Photos Needed!

If you love taking photos in rural settings and would like to see them published in Rural Mental Health, please email an electronic file to pam@togpartners.com or mail a hard copy photograph to **NARMH, 300 33rd Ave. S., Suite 101, Waite Park, MN 56387**. Hard copy photographs will not be returned. Please include photographer's name (required) and caption (optional).

The Relation Between Weight and Psychosocial Concerns among Youth Presenting in Rural Pediatric Primary Care

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The rural primary care setting may be the foremost health care resource for managing child and adolescent weight as well as psychosocial concerns reported by parents. This preliminary study examined the relation between weight and parent-reported psychosocial concerns among youth presenting to pediatric primary care clinics serving rural Appalachia. Parents of youth presenting for a sick or well child visit completed a demographic questionnaire and the Pediatric Symptom Checklist in the waiting area prior to their office visit. Standardized body mass index (zBMI) were computed based on information retrieved

via review of clinic medical charts. Psychosocial concerns, specifically attention difficulties, were found to be significantly and negatively correlated with zBMI. Higher zBMI was found in youth with clinically significant (versus non-significant) internalizing scores and clinically non-significant (versus significant) attention difficulty scores. Additional research is needed to understand the complex relationship between weight and psychosocial concerns among youth presenting to rural pediatric primary care. An understanding of the relation between these factors may facilitate prevention/intervention efforts.

Research suggests that youth residing in rural areas are approximately 25% more likely to be overweight than their metropolitan counterparts (Lutfiyaa, Lipsky, Wisdom-Behounek, & Inpanbutr-Martinkus, 2007). This may be partially explained by research that documents poorer nutrition (Crooks, 2000; Stroehla, Malcoe, & Velie, 2005) and a more sedentary lifestyle (Hortz, Stevens, Holden, & Petosa, 2009) among this group. Overweight youth tend to have myriad physical health concerns such as hypertension and diabetes (Jelalian & Mehlenbeck, 2003) that are believed to contribute to more primary care medical visits than their healthy weight counterparts (Hampl, Carroll, Simon, & Sharma, 2007). Pediatric overweight has also been associated with a variety of psychosocial concerns including greater social problems and lower self-esteem (Jelalian & Mehlenbeck, 2003) as well as greater use of mental health resources (Estabrooks & Shetterly, 2007). These physical and psychosocial health consequences are especially problematic given fewer medical as well as mental health resources in rural areas (Hauenstein, 2008; Hendryx, 2008; Kelleher, Taylor, & Vaughn, 1992).

Rural residents' may be at greater risk for behavioral health difficulties due to research documenting both poor access (e.g., travel distance and limited providers) and utilization of healthcare services (Jones et al., 2009). Research has also posited disparities in child psychosocial health attributable to poverty (Hacker et al., 2006) and parents with limited education (Briggs-Gowan & Carter, 2008), both strongly linked characteristics of rurality (Or-

mond, Zuckerman, & Lhila, 2000). Further, it has also been shown that rural residents perceive greater stigma in relation to health care (Harju, Wuench, Kuhl, & Cross, 2006), and this barrier may be amplified by the societal stigmatization of those with psychosocial concerns (Baumann, 2007) including those who are overweight (Drury & Louis, 2002).

Clearly, the context of rural living presents unique challenges for health care. The rural primary care setting has been considered a comprehensive health care resource for children and adolescents (Kelleher et al., 1992). Research suggests pediatric primary care, rather than specialty mental health care services, is the chief delivery setting for child mental health care (Kelleher, McInerney, Gardner, Childs, & Wasserman, 2000). In fact, survey data shows pediatricians rank psychosocial concerns as the most common presenting problem in their practice (Arndorfer, Allen, & Aljazireh, 1999) and these concerns may be even higher in rural pediatric primary care settings (Polaha, Dalton, & Allen, under review).

The prevalence of pediatric overweight (Wang & Lobstein, 2006) and psychosocial concerns (Kelleher et al., 2000) continue to rise. Due to the high frequency of visits related to pediatric overweight and psychosocial concerns in primary care, these sites may be uniquely situated to address these concerns, especially among rural residents who lack other health care resources. Since health care providers are often the first to hear about child behavioral health problems (Wildman & Stancin, 2004) and often the only professional available to treat children living in rural regions, these providers are in a unique position to assess for co-occurrence of behavioral health problems such as psychosocial concerns as well as overweight. An understanding of the relation between these factors in rural areas may direct development of prevention/intervention strategies.

To date, no study has examined the relation between weight and psychosocial concerns among youth present-

ing in pediatric primary care serving rural Appalachia. This relation is important to understand because it has implications for the development of more sophisticated and targeted interventions in rural primary care. If, in fact, rural individuals with overweight are at greater risk for concurrent behavioral/psychosocial concerns, then the best primary care-based intervention is one that might address the two in tandem. Consistent with previous literature, it was predicted higher weight would be associated with higher psychosocial concerns.

METHODS

A total of 628 English-speaking parents attending a sick or well visit with their child were recruited as part of a larger study examining psychosocial concerns among youth presenting to pediatric primary care clinics in rural Appalachia (Polaha et al., under review). Fifty-eight participants were excluded from the larger study due to 1) the child not meeting age requirements (i.e., 4-16), or parents leaving more than 4 questions unanswered on the psychosocial measure. The current study was specifically interested in those participants who had weight status information. Of the 570 participants in the larger study, 289 (51%) parents provided consent to obtain anthropometric data from medical records. Because of missing data in the primary care clinics' medical records, an additional 61 participants were eliminated, leaving the total sample for the current study at 228.

Procedure

Data was collected across three pediatric primary care clinics in rural Appalachia (i.e., Southwest Virginia and Northeast Tennessee). Nurses or research assistants invited parents in the waiting room to participate in the study. Those interested were provided a packet that included a 1) letter describing the study, 2) consent form releasing access to medical records, 3) demographic questionnaire, 4) psychosocial concerns checklist, and 5) an attached envelope. Parents com-

pleted the demographic questionnaire and psychosocial checklist regarding the child (or children) whom they had brought to the clinic. Parents placed these forms in an envelope, sealed the envelope, and deposited the envelope in a designated box in the waiting area. Primary care personnel assisted in reviewing medical charts to obtain anthropometric data for youth whose parents provided consent. Study procedures were approved by the Institutional Review Board at East Tennessee State University, as well as review boards for specific primary care sites where applicable.

Measures

Demographic questionnaire. A demographic questionnaire assessed child/adolescent age, date of birth, gender, county and zip code of residence, mother and father education, and presenting parent's relationship to child (e.g., mother).

Psychosocial concerns. The Pediatric Symptom Checklist (PSC; Jellinek, Murphy, & Burns, 1986) was used to identify psychosocial concerns. The PSC consists of 35 statements (e.g., "Distracted easily") to be rated by the parent as occurring "Never" (0), "Sometimes" (1), and "Often" (2). The PSC contributes to an overall and three subscale scores (Internalizing, Externalizing, and Attention) with higher scores indicating greater parental concern. Clinical cutoffs have been created to determine clinical significance or high levels of psychosocial dysfunction that may benefit from further evaluation and/or a referral to mental health services (i.e., for children ages 4-5 > 24 and for children ages 6-16 > 28) (Little et al, 1994; Pagano et al, 1996). For the Internalizing, Externalizing, and Attention subscales, a clinically significant concern was indicated by a total score of > 5, > 7, and > 7, respectively (Gardner et al., 1999). The PSC is considered a reliable and valid measure (Jellinek et al., 1988; Murphy et al., 1996) and was specifically designed for children ages 4-16 years presenting in primary care.

Anthropometric data. Weight status was determined by height, weight, date of birth, date of evaluation, and sex from the child's medical chart. The height and weight obtained closest to the date of survey administration served as an 'index' for weight status. Body Mass Index (BMI) was calculated (kg/m^2) and plotted on sex-and-age-specific 2000 Centers for Disease Control and Prevention (CDC) growth charts (Kuczmarski et al., 2002) to calculate percentile scores. Additionally, standardized BMI (zBMI) scores [(measured value-average value in the reference population)/standard deviation of the reference population] were calculated for statistical analyses.

Statistical Analyses

All statistical analyses were conducted with SPSS (version 16.0; SPSS Inc., Chicago, IL, USA) software. Simple descriptives including frequencies were used to detail the characteristics of the sample. Rural Urban Continuum Codes (RUCC; Economic Research Service, 2003) were used to define "rurality" based on participants' county of residence. The codes range from 1 (most metropolitan) to 9 (most rural). Consistent with CDC guidelines, children were assigned to one of the following percentile categories: underweight (< 5th), healthy weight (5th to <85th), overweight (85th to < 95th), and obese (>95th). Pearson chi-square analyses via a two-way contingency

table analysis using crosstabs, were used to assess differences in demographic variables between those who provided consent for obtaining weight data compared to those who did not as well as those who were a healthy weight compared to those who were overweight or obese. Pearson chi-square analyses were also used to assess differences in demographic variables and clinically significant psychosocial concerns between those residing in a less versus more rural areas. Pearson correlations were used to examine the relations between psychosocial concerns and zBMI. In an effort to better understand clinical meaningfulness, independent sample t-tests were used to examine weight between clinically significant and non-significant groups in terms of psychosocial concern scores.

RESULTS

Sample Characteristics

Youth (51% Male) ranged in age from 4 to 16 years ($M = 8.68$, $SD = 3.47$) with % pre-school age (4-5) and % school age (6-16). Parents completing the measures were primarily mothers (86%). All clinics were located in Appalachia, which has been characterized by the Appalachian Regional Commission (ARC) as 42% rural compared with 20% found in the national population (2010). This region has been further described as having high rates of chronic disease (Halverson et al., 2002) and poor health behaviors among youth (Crooks, 2000). Application of RUC codes based on county of residence revealed the sample could be divided into two groups. Approximately 53% resided in less rural counties with a RUC code of 3 (i.e., counties in metro areas of < 250,000) and 47% in more rural counties with a code of 6 (i.e., Urban population of 2,500 to 19,999, adjacent to a metro area) or "8" (completely rural or <2,500 urban population and adjacent to a metro area). Approximately 42% of mothers and 46% of fathers had completed a high school degree and another 49% and 37%, respectively, had completed

varying levels of college in addition to a high school degree. More details on characteristics of the larger sample may be found elsewhere (Polaha et al., under review).

Pearson chi-square analyses revealed no significant differences on demographic variables (i.e., age, gender, rurality, mother education, father education) between those who provided informed consent for BMI data and those who did not provide consent. Based on CDC percentile scores, 43% of participants were classified as healthy weight, 53% as overweight or obese, and 4% as underweight. Pearson chi-square analyses once again revealed no significant differences on demographic variables between those who were a healthy weight versus overweight or obese. Approximately 23% met criteria for clinically significant psychosocial concerns, 17% for internalizing and externalizing problems, and 22% for attention problems. Finally, Pearson chi-square analyses revealed significant differences for gender between those who resided in a less versus more rural area, Pearson $\chi^2(1, N = 219) = 4.28$, $p = .039$. Specifically, more males appeared to reside in less rural areas and more females in more rural areas. No other significant differences were found among demographic variables (age, mother education, father education) or presence (versus absence) of clinically significant psychosocial concerns between those who resided in less versus more rural areas.

Psychosocial Concerns and zBMI

Results of bivariate analyses between PSC scores and zBMI revealed no significant correlations between zBMI and Total PSC scores, $r(228) = -.05$, $p = .46$, Internalizing subscale score, $r(220) = .05$, $p = .49$, and the Externalizing subscale score, $r(226) = -.006$, $p = .93$. However, scores on the PSC Attention subscale were significantly and negatively correlated with zBMI, $r(215) = -.18$, $p < .01$.





Clinically Significant Psychosocial Concerns and zBMI

Independent samples t-test revealed statistically significant differences for zBMI between participants with a clinically significant total psychosocial score ($M = 0.70, SD = 1.61$) and those without a clinically significant score ($M = 1.14, SD = 1.30$), $t(226) = 2.01, p = .05$. Similarly, statistically significant differences for zBMI were found between participants with a clinically significant score on the PSC Internalizing subscale ($M = 1.46, SD = 1.17$) and those without a clinically significant score ($M = .96, SD = 1.40$), $t(218) = -2.06, p < .05$, as well as between participants with a clinically significant score on the PSC Attention subscale ($M = 0.59, SD = 1.51$) and those without a clinically significant score ($M = 1.16, SD = 1.33$), $t(213) = 2.54, p < .05$.

DISCUSSION

Despite previous research documenting greater weight to be associated with greater psychosocial concerns (Jelalian & Mehlenbeck, 2003), the current study found no significant relation between weight and overall psychosocial concerns as reported by parents. However, lower levels of weight were associated with higher levels of concern regarding attention difficulties in youth. Further, when youth were categorized according to whether or not they met clinical significance for overall psychosocial concerns, we found that those with clinically significant psychosocial concerns weighed significantly less than those without clinically significant concerns. However, more in line with previous research we found those with clinically significant internalizing problems weighed significantly more than those with without clinically significant internalizing problems. Finally, similar to the initial findings those with clinically significant attention difficulties weighed significantly less than those without clinically significant attention difficulties.

The current study did not find overall psychosocial concerns to be related to weight. We offer two explanations for these findings. First, because of the rising child/adolescent overweight rates in rural America with some rates approaching 50% (Felton et al., 1998), overweight youth may be quickly becoming the “norm”, rather than the minority. Thus, overweight children may be provided with more support and nurturance and less ostracism in rural areas where obesity rates are high. Since stigmatization has been cited as a potential cause of psychosocial difficulties (Puhl & Latner, 2007), then one may postulate that an

overweight child not living in a stigmatized environment (e.g., rural areas) will be less likely to develop psychosocial concerns. Second, the PSC may not measure the specific psychosocial concerns overweight youth are most likely to experience. While the PSC is a valid and reliable measure for overall psychosocial concerns, it may not tap into the specific factors surrounding the psychosocial difficulties common to overweight youth including poorer health related quality of life, especially physical and social functioning (Tsiros et al., 2009). On the other hand, we did find higher levels of internalizing problems to be associated with higher levels of weight. It may be that this subscale assesses specific psychosocial concerns that have been found to relate to weight such as self-esteem (Strauss, 2000). Future research with additional measures may address this issue.

The findings regarding attention difficulties are novel and of special interest. Attentional difficulties were the most prevalent psychosocial concern documented in this study with approximately 22% of the youth sampled having clinically significant attentional difficulties. This is in line with previous literature citing attentional difficulties as a leading behavioral health concern in primary care (Brown et al., 2001). It may be that these youth are treated with prescription stimulants to help counteract attention problems. In fact, one study found that primary care physicians prescribe 88% of all children carrying a diagnosis of ADHD stimulant medication (Wolraich et al., 1990). Additionally, research suggests that children living in mostly rural or mostly urban areas are even more likely to be prescribed stimulant medication for attention problems (Cox, Motheral, Henderson, & Mager, 2003). The primary side effect of stimulant medication is decreased appetite and weight loss (Schertz, Adesman, Alfieri, & Bienkowski, 1996). Unfortunately, we are unable to make definitive conclusions since the PSC does not directly assess for ADHD and we did not assess medication use by youth in the current study.

Another possible mediating factor in the relationship between attention and weight includes sleep. In fact, a recent study found sleep problems to be common among schoolchildren with ADHD (Sung, Hiscock, Sciberras, & Efron, 2008) and another study of preadolescent children found shorter sleep duration to be associated with greater likelihood of obesity (Ievers-Landis, Storfer-Isser, Rosen, Johnson, & Redline, 2008).

In the current study over 53% of the children were identified as overweight or obese. This rate is much greater than national child and adolescent prevalence rates of 17-18% (Ogden, Carroll, & Flegal, 2008) and even greater than previously documented rates of overweight/obesity among school-aged children residing in rural areas ranging from 30-49% (e.g., Crooks, 2000; Felton et al., 1998; Krummel, Farmer, & Semmens, 2004). These findings are important in that a larger number of youth presenting in rural clinics may be at-risk for psychosocial concerns related to overweight, especially internalizing concerns. Interestingly, in the current study there were no differences in weight status based on level of rurality. Further, there were few differences in those residing in less versus more rural areas with the exception of gender. This may be due to the limited range of rurality included in this study. Another possible explanation for the lack of significance across rurality is the Appalachian culture. Since all three primary care sites are located in Southern Appalachia, individuals residing in this area may possibly maintain similar values and practices toward healthcare and well-being. Thus, participants may be prone to respond and present similarly across the Southern Appalachian region.

Potential limitations to this study include lack of generalizability to other pediatric primary care facilities, especially among those located outside of the Appalachian region and those not serving rural residents. Future studies may benefit by examining these relationships in a range of rural versus urban areas. This study included only a subsample of youth from our larger

study. Therefore, self-selection bias could be a potential concern. Parents with children who are overweight or obese may have been more willing to participate in a study examining weight factors than those parents with normal weight children. Additionally, there were a number of participants giving consent for anthropometric measures in which the primary care site did not have the needed data to calculate zBMI (i.e., height, weight, etc.). It may be that youth who appear overweight are more likely to be weighed and measured due to potential health concerns by the physician thus skewing the percentage of overweight and obese youth in this sample. On the other hand, it may be that youth with missing information were attending sick (versus well) visits that may not routinely include measurement of weight and height. Future studies may address this issue by collecting anthropometric data on the date the survey is completed.

This preliminary study is the first to examine the relation between weight and psychosocial concerns in pediatric primary care clinics serving rural, specifically Southern Appalachia. The findings suggest that health care providers working with overweight youth in these settings should assess youth who are overweight for psychosocial concerns, specifically internalizing problems. Further, attention difficulties may be a psychosocial concern that is important to assess across weight categories. We found lower levels of weight to be associated with higher levels of attention concerns as reported by parents. The fact that a recent study documented that children with attention problems may be at-risk for overweight (Waring & Lapane, 2008) provides additional support for the need for future studies aimed at better understanding how health behaviors/factors and psychosocial concerns are interconnected, so primary care providers can intervene with patients most effectively. This may be especially important in rural areas where health disparities are abundant, youth overweight is rampant, and primary care settings are often sought for both physical and mental health needs.

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Behavioral Health Workforce Development in Rural and Frontier Alaska

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INTRODUCTION

It has been estimated that 60% of rural America is underserved in terms of mental health needs (New Freedom Commission on Mental Health, 2004), with more than 85% of the nation's mental health professional shortage areas located in rural America (Bird, Dempsey, & Hartley, 2001). Individuals living in these sections of the country are faced with three distinct burdens to obtaining adequate mental health care: accessibility, availability, and acceptability (Mohatt, Adams, Bradley, & Morris, 2005; New Freedom Commission on Mental Health, 2004). Access is hampered by lack of awareness of the services that address mental health needs and the scarcity of such services (New Freedom Commission on Men-

tal Health, 2004). It is not uncommon for rural Americans to travel hundreds of miles to reach service sites and, even then, the types of services are usually limited by funding and staffing constraints. In addition to these practical barriers, rural residents also face psychological barriers. The stigma commonly associated with seeking help for mental health and substance abuse problems is exacerbated in rural areas where there is little anonymity for those obtaining behavioral health care (Mohatt et al., 2005). These psychological barriers limit the acceptability of services.

Alaska is unique in many of the challenges it faces in providing behavioral health services to its rural and frontier communities. Approximately 60% of Alaska's residents live in or near

the three largely urban boroughs of Anchorage, Fairbanks, and Juneau (U.S. Census Bureau, 2001). However, the remaining 40% are scattered throughout rural and frontier Alaska. These non-urban areas encompass 39 towns and over 200 village councils, the latter of which are organized under 12 Alaska Native Regional corporations. The populations of these rural and frontier communities, which are located in a geographical region nearly two and a half times the size of Texas, vary in size from an estimated 50 to 13,500, with an average of 1,600 people per community. This daunting geographical size-to-population ratio combines with Alaska's challenging landscape and climate, and the lack of roads between communities to create enormous obstacles to delivering and accessing behavioral health care (Roberts, 2007).

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Despite the extraordinary challenges, Alaskans have been resilient and enormously creative in addressing behavioral health needs by devising and implementing novel workforce development strategies. Drawing heavily on their unique history, traditions, and strengths, they have been building a mental health and addictions workforce that is responsive to the unique characteristics of rural and frontier Alaska and its inhabitants. This review is based on the experience of the authors, who have been part of the state's workforce development efforts. The article identifies the forces of reform that catalyzed change in Alaska's approach to workforce development, describes the innovations that have occurred, and details the newest phase of workforce development, which centers on work-based learning approaches to staff training and career advancement. The implications of the Alaskan experience for other rural and frontier areas are discussed.

THE FORCES OF REFORM

Like most states, Alaska's historical approach to workforce development placed considerable emphasis on importing or training professionals. Despite these efforts, the supply of professionals has never been adequate to meet service demand. Cultural differences have also been an obstacle to appropriate care, especially in rural parts of Alaska where the remote lifestyle and indigenous culture is foreign to professionals oriented in western culture. These professionals all too frequently retreated, after a brief time in remote areas, to the continental United States or to the urban areas of Alaska. The professional workforce in Alaska has long been complemented by direct care providers who do not have graduate training in behavioral health. However, these members of the workforce seldom advanced their careers beyond entry-level positions.

Thirty years ago a series of events began to highlight the behavioral health problems facing rural and frontier Alaska and sewed the seeds of workforce

development reform (Roberts, 2007). The year 1988 was marked by a series of newspaper articles entitled *A People in Peril*, which appeared in the Anchorage Daily News (Doughtery, 1988). These articles addressed the significant and worsening impact of alcohol abuse on Alaska Native life. Through investigative reporting and in-depth interviews with Alaska Native health providers, community leaders, and victims of alcohol abuse, the Anchorage Daily News painted a poignant picture of Alaska's behavioral health problem and the urgent need for change.

In January 1989, the Alaska Federation of Natives issued a report on the status of the state's Native population entitled *A Call for Action*. It echoed the sense of urgency with a call for Alaska Native communities to take concerted and unified action to address their workforce and education needs. Reflecting the workforce deficit of qualified Alaskans for behavioral health professions, they wrote, "It is a harsh but real truth, that, even where jobs are available, substandard education denies many young Native adults the opportunity to secure gainful employment, just as it denied the same opportunity to many of their parents and grandparents" (p. 1).

Also in 1989, the Alaska Department of Health and Social Services (DHSS) sponsored a statewide three-day meeting focused on strengthening education and training for the behavioral health workforce located in rural and frontier Alaska. Approximately 70 individuals convened, representing community-based health providers, village communities, and regional service programs. Their charge was to reexamine the relevance and efficacy of existing behavioral health service and educational programs for non-urban portions of the state. Setting this meeting apart from most previous sessions was the large contingent of front-line Alaska Native health providers, Native Elders, and other rural Alaskans meeting with university and other state officials. More of a "gathering" than a formal meeting, participants rather

than presenters advanced the discussion and the resulting mandate for meaningful educational reform.

Meeting attendees concluded that, as a state system of care, Alaska's rural and frontier behavioral health programs suffered from too few culturally grounded programs and insufficient numbers of culturally competent service providers. They recommended educational reform that grounded training in Alaska Native cultures, local knowledge and practice, and the teachings of Elders. They envisioned an emphasis on "traditional" ways of being, knowing, and healing, while including best practices from "western" theory and service models. They called for more higher education programs to prepare providers for the behavioral health workforce, especially for rural and frontier Alaska. They argued that this education should be offered to the local Alaska Native population and to others committed to living and serving the underserved portions of the state. Finally, they insisted on systematic opportunities for educational and job advancement through clearly articulated career ladders, offering those in entry level positions the option for continued learning and job growth. All of these recommendations were intended to empower Alaska Native communities to address the behavioral health needs of their members.

In 1994, following more than two years of study and deliberations, a report was issued by the Joint Federal-State Commission on Policies and Programs Affecting Alaska Natives (Irwin, 1994). The findings of the report underlined the magnitude of the "plague" or "epidemic" of alcohol abuse in Alaska. Similar to the findings of the 1989 meeting, this report championed the idea that any hope for improvement in such serious health and social problems needed to be built around Alaska Natives ownership and responsibility for the solutions. The report acknowledged that the social and cultural problems faced by Alaska Natives were not of their own making, while clearly stating that Alaska Natives owned the consequences of

their problems. It emphasized the need to give tribes and tribal courts local powers and jurisdiction in the areas of alcohol importation and control, community domestic relations, and law enforcement. In addition, it encouraged villages to develop community-based, family-oriented, and culturally relevant strategies to address their behavioral health problems.

INNOVATIONS IN WORKFORCE DEVELOPMENT

A Novel Educational Model

These meetings, commissions, reports, and media publications all helped to catalyze educational reform. Such reform was clearly visible in a 1993 pilot program held at the Tanana Chiefs Conference regional health corporation in Fairbanks. The three-week intensive program, which met both day and evening, involved a cohort of over 30 Alaska Native village providers who worked in or aspired to work in a community behavioral health role.

The pilot's key characteristics included: Alaska Native Elders as active and equal members of the teaching team; a focus on personal development and healing; attention to the whole person within the context of community and culture; value on the emotional and spiritual needs of learners; cooperation within a learning community; experiential learning that had relevance to real life situations; respect for adult learners as active participants in the learning process; patience with the development of the learning and learner skills; and an educational format and schedule that was accessible to Alaska Natives from rural villages. As a teaching method, the use of a "talking circle" captured the thoughts and feelings of learners, many of whom may not have felt comfortable or compelled to participate in a regular classroom setting. With its protocol of one person having the floor to speak at a time and moving in order from one person to the next in a clockwise manner, the emphasis was on respectful listening rather than competitive dialogue.

This pilot was one root of what has become known in Alaska as the ABC model of education. The acronym stands for Accelerated Access to education and training; Blended delivery of learning modalities, approaches, and teachers; and a Community or Cohort of adult learners. The three defining elements of this model have proven to be relevant and transferable to other workforce development programs in Alaska, including those focusing on learner development in human services, social work, and early childhood. The model is evident in the various initiatives that followed and are described below.

"Grow Our Own" Initiatives

Given the limitations inherent in recruiting a workforce from another region or state, the "grow our own" approach took hold within behavioral health. It involves training and developing village residents as behavioral health workers as a means for increasing access to culturally relevant services in Alaska Native villages. Rather than enticing workers into a village, it emphasizes skill development among those who have roots and wish to remain in an area. Using this approach, a series of largely grant funded and time limited initiatives created job training and the job roles of village Suicide Prevention Counselor, Village Alcohol Counselor, Village Wellness Counselor, Mental Health Technician, and Indian Child Welfare Worker. Other initiatives created roles within newly established residential treatment centers designed for adults and adolescents with substance use disorders.

Each "grow our own" effort has been directed at reducing behavioral health related morbidity and mortality. Taken together, they have yielded valuable lessons about the variables important in developing and sustaining a workforce. Such lessons included: the importance of a stable financing system that survives initial grant funding; cross-village collaboration; flexibility in tailoring workforce development to a specific village and individual learner;

being attentive to the needs of workforce employers, and avoiding insular, discipline-based, or overly academic approaches.

Rural Human Services Certificate Program

In the mid 1990s, the University of Alaska responded to the forces of change by creating the Rural Human Service (RHS) program designed specifically to prepare a village based behavioral health workforce. It offers a culturally grounded educational experience to natural helpers and healers in rural Alaska. The program is an intensive cohort model, with 1, 2, or 3 week classes that build skills on topics such as crisis intervention, suicide prevention, community development, mental health and substance abuse counseling, interpersonal violence, grief, and healing. Initially developed as a pilot project, the program is now offered through a network of four regional University sites located in Anchorage, Bethel, Fairbanks, and Kotzebue.

Learners receive a 34 credit certificate for completing the program and advanced standing in the Associate of Applied Science (AAS) degree program in Human Services. Once matriculated into the AAS Human Services degree program, students are situated in a university education and workforce pathway that extends through several bachelor programs and later to a MA in Rural Development, an MSW in Social Work, or to a Ph.D. in Clinical-Community Psychology.

Behavioral Health Aide Program

The Alaska Native Tribal Health Consortium (ANTHC), an organization dedicated to offering medical care and community health services in Alaskan Native villages, has played a major role in developing front line, village-based behavioral health workers. It has built on the successful Community Health Aide (CHA) program, which trains and places a CHA in each village to respond to immediate health issues and to connect individuals to more advanced care. As a parallel approach,

the Consortium's Behavioral Health Aide (BHA) initiative has a number of key characteristics: 1) the learners are drawn from the community of service or a nearby community; 2) they are trained using a specific set of competencies developed to address Alaska Tribal Health System needs; 3) once trained, BHAs function as a member of a village-based service team and as collaborators with other behavioral health professionals; and 4) they are responsible for providing village-based prevention, early intervention, and case management services.

A robust set of standards for BHAs were generated, vetted by the ANTHC and a very broad group of stakeholders from around the state, and then approved by the Tribal Health Board. The standards include information on the eligibility requirements and scope of practice for four levels of practice. The required courses and learning content for each BHA level are specified, as are the training programs such as the RHS certificate that, if completed, qualify an individual for certification at a specific BHA level (<http://www.anthc.org/chs/behavioral/certification.cfm>).

For example, some of the competencies and functional duties at each BHA level are as follows: 1) a BHA I recognizes health and social issues and provides general information to clients and the community; 2) a BHA II recognizes symptoms and conditions and responds therapeutically with support from the supervisor; 3) a BHA III provides assessment and treatment; and 4) a BH IV (behavioral health practitioner) mentors, supervises, supports, and evaluates other BHAs as they provide behavioral health services.

While the competencies and credentialing system were officially approved in the fall of 2008, they have been in use for a number of years in draft form as the basis for training Behavioral Health Aides and Village-Based Counselors. Over 150 Alaska Natives have been trained and employed in such roles. A grandfathering process for



certification of individuals already providing village-based behavioral health services (Village-Based Counselors) is also underway.

THE WORK-BASED LEARNING MODEL

The latest phase of innovation centers on implementation of work-based learning (WBL) as an educational approach in rural and frontier areas. This is funded by a grant from the Robert Wood Johnson Foundation and the Hitachi Foundation, through their Jobs to Careers initiative (<http://www.jobs2careers.org>). The Alaska project is part of a nationwide demonstration that is managed, on behalf of the foundations, by Boston-based Jobs for the Future (<http://www.jff.org>).

In the United States, the term "work-based learning" grew out of the "school-to-work" movement, which focused on helping non-college bound youth develop the skills necessary to not only to find a job, but also a career (Glover, 2008). This was a leap forward from high school work-study programs that had previously arranged employment opportunities that involved relatively low-wage, non-skilled jobs and left young men and women unqualified for positions within careers that paid a living wage.

From the perspective of the Foundation-funded Jobs to Careers program, work-based learning (WBL) is an evolving model of workforce development that is largely integrated into the workplace with six defining features (Capoccia, 2005). First, it involves an active partnership between the employer and an educational or learning organization, in contrast to the traditional scenario in which an employer or educational organization independently provides the learning experience. Second, the curriculum is "work place driven" in the sense that: the learning objectives are drawn from the required competencies for the job; the work activity is structured around the learning objectives; and additional learning resources are integrated into the work experience. Third, a learning culture is established in the worksite and supports continuous learning, rather than segmented educational experiences that are tied to an academic calendar. The fourth defining characteristic is that the learner is identified as the employee, not as a student, and is accountable for performance in both their work and learner roles. Structured expectations and assessments constitute the fifth characteristic and involve defined learning objectives, structured work and learning activities, reflective self-assessment, and performance measurement with feedback. The final

characteristic centers on rewards for progress, which ideally involve academic credit, professional certification, and increased salary or benefits.

On-the-job training has been a common practice for thousands of years, dating back to apprenticeship models, which are still in use today and are promoted by the U.S. Department of Labor (<http://www.doleta.gov/OA/eta/default.cfm>). Other models, such as internships, practica, service learning, and job shadowing are centered on the notion of learning within worksites. Glover (2008) summarizes data that suggests that 80-90% of employees' job skills are developed through on-the-job training, both formal and informal in nature, and that expenditures for on-the-job training equal those for formal education.

A cardinal element of the *Jobs to Careers* initiative on work-based learning is that it has a similar focus on enhancing the career opportunities for employees by building skills that lead not only to better job performance, but to certification, academic credit, and the potential for increased wages and benefits (Wilson, Cowan, Phippen, & Starr, 2008). This model is highly relevant to members of the workforce that staff the front-lines of so many behavioral health service programs, as these employees often lack formal degrees and have little access to offsite educational opportunities that would lead to career advancement (Wilson, 2009). The work-based learning approach also addresses the vacuum in competency-based training for direct service workers that has resulted from employer reductions in in-service training as a consequence of financial constraints within the behavioral health sector.

THE WORK-BASED LEARNING INITIATIVE IN ALASKA

An Employer – University Partnership

This initiative is the third behavioral health work-based learning program funded through Jobs to Careers. It is

based on close collaboration between the Norton Sound Health Corporation (NSHC), as the employer partner, and the University of Alaska Fairbanks, as the academic partner. Founded in 1970 and headquartered in Nome, Alaska, NSHC serves the health care needs of the Inupiat, Siberian Yupik, and Yup'ik people of the Bering Strait region of northwest Alaska (<http://www.nortonsoundhealth.org>). It is the primary source of continuous medical care for the region, including behavioral health services, dental care, eye care, and emergency medical services. NSHC's Behavioral Health Services clinicians see clients in Nome and regularly travel to serve clients in outlying villages.

The Alaska Rural Behavioral Health Training Academy (ARBHTA), based at the University of Alaska Fairbanks is the lead on this grant initiative (<http://www.uaf.edu/arbhta>). It has a mission to ensure an effective behavioral health workforce for the rural and frontier regions of the state. The programs of ARBHTA focus on building culturally relevant competencies through evidence based teaching methods and on fostering the retention of trained individuals in the behavioral health workforce.

The collaboration is supported by technical assistance from the WICHE Mental Health Program (<http://www.wiche.edu/Mentalhealth/>), and the Annapolis Coalition on the Behavioral Health Workforce (<http://www.annapoliscoalition.org>). The WICHE Mental Health Program assists western states in improving systems of care for mental health consumers and their families and in advancing the preparation of a qualified mental health workforce. The Annapolis Coalition is a policy, planning, and technical assistance organization that developed a federally funded national Action Plan on Behavioral Health Workforce Development (Hoge et al., 2009) and has widely promoted competency development in the direct support and professional workforce (Hewitt et al., 2008; Hoge, Morris, & Paris, 2005).

Work Place Driven Curriculum & Competencies

For over a decade the University of Alaska has been developing a behavioral health curriculum specifically designed to build the practical skills required in rural service settings. Thus, the academic framework for capturing and documenting the targeted learning objectives in this initiative was drawn from the university's AAS Human Services (HUMS) degree program. The substance of seven HUMS courses were incorporated into this work-based learning initiative from the degree concentration in behavioral health. These cover a broad scope of material, including: professional and ethical standards of practice; self assessment strategies based on portfolio development; basic interviewing and helping skills; prevention; case management; crisis intervention; and interventions with mental health and substance use problems.

The HUMS curriculum was developed to include the Behavioral Health Aide (BHA) competencies described above. Those BHA competencies have been a second source of guidance from which the work-based learning needs have been identified and competencies specified. Having been developed by the Consortium of Tribal employers, these competencies also are highly workplace driven.

A Work-Based Learning Culture

While training in Alaska has become increasingly accessible in the rural and frontier regions, this initiative builds the entire learning experience around the workplace. The primary instructional method is a learning-by-doing approach in which specific competencies are acquired through prescribed work-based activities. Each competency has been translated into a set of guided learning experiences that involve observing and then conducting service activities.

Learners have regular contact with one or more of the behavioral health program's clinical supervisors. The

novel aspect of this element of the program is that supervisory staff from the employer, Norton Sound Health Corporation, have been appointed adjunct faculty at the University, creating a tight link between the work life and education of the learner. In their roles as adjunct faculty and mentors, clinical supervisors blend an understanding of workplace demands and academic goals, helping the employee to develop a set of comprehensive and relevant skills. The clinical supervisors receive mentoring from University faculty to help them effectively assume these critical roles.

On a weekly basis, learners are asked to reflect on their experiences through the task of journaling. They are encouraged to bring their reflections into the supervisory process and to also share their experiences with peers and Elders, who are part of the educational process. Elders bring a unique contribution to the learning experience, creating an explicit connection with the tribal culture and language and offering a culturally attuned perspective on the nature of individual and community problems and paths to healing. Perhaps most important, their presence is affirming for the learner, fostering self-confidence about their personal value, heritage, and ability to make a meaningful contribution to their community.

The concept of the learning circle is recreated literally and, at times, figuratively at the workplace through

two hour weekly meetings that bring together peers, supervisors, and Elders. Due to the vast geographical distances that may separate learners and the weather challenges of rural Alaska, some learners may attend sessions via two-way video, using available telebehavioral health technology, while others may have access only via audio conferencing. UAF faculty and the local supervisors provide instructional content and selected readings. However, a premium is placed in this learning community on dialogue and development of a shared understanding of the work.

Competency Assessment

Each competency for an individual is assessed using a four-step process that includes the learner, peers, supervisors, and a qualified Elder. Specific behavioral competencies are documented as acquired in the learner's portfolio once successful demonstration or mastery has been: 1) self-assessed by the learner, with feedback from his or her peers; 2) assessed in the field by a clinical supervisor; 3) reviewed and accepted by an Elder functioning as the learner's mentor; and 4) reviewed and approved by the lead instructor of this initiative. This comprehensive process ensures that multiple perspectives are represented in assessing and demonstrating the competency of the worker.

Rewards for Learning

The structure of this approach yields a number of rewards for participants. By utilizing accredited university HUMS courses as the foundation for this initiative, learners in this 2.5 year program accrue up to 18 universally recognized academic credits rather than certificates of completion, as historically has been the practice. Another advantage is that program completion leads to eligibility to be credentialed as a Behavioral Health Aide I by a board of the Alaska Native Tribal Health Consortium. Credentialed status is linked to eligibility to provide reimbursable services, which in turn enhances the employability and job mobility of the worker.

Conclusion: Implications for the Behavioral Health Field

Three decades of innovation and progress in Alaska have created fundamental reforms in the approach to recruiting and training a behavioral health workforce. The traditional focus on training and development of professionals still plays a significant role within the state and its university system. Complementing such offerings, however, has been the enormous focus on recruiting and training Native Alaskans as providers and affording them substantive education programs, academic credit and credentialing, and opportunities for advancement.

Work-based learning builds on these prior initiatives by creating an organized learning experience that is tied to an explicit set of competencies and imbeds it in the work flow for Native Alaskans who are providing behavioral health services in rural and frontier communities. It is a natural extension both of tribal efforts to define competencies and university efforts to increase the relevance of its human services curricula. It is fostering a new level of employer and university collaboration that is yielding increased access to education, greater precision in the training approach, and the opportunity for career advancement for workers. The model not only has



applicability to development of a rural and frontier behavioral health workforce throughout the nation, but also to other types of direct care workers in these regions, such as those employed in developmental disabilities and long term care.

While work-based learning may be particularly invaluable in rural and frontier areas, its relevance in urban America is substantial. In many urban service settings, non-degreed providers comprise up to 50% of the behavioral health workforce, have high turnover rates, and frequently leave not only their jobs, but the field as well (Morris & Stuart, 2002). Work-based learning may similarly serve to strengthen the skills of the urban workforce, create advancement opportunities, and decrease turnover among these critical front line providers. For its full impact to be realized a continued collaboration is necessary in which governments and foundations support its development and educators and providers refine and evaluate the most ways in which to incorporate learning into the daily flow of work.

While there are many challenges to providing behavioral health services in rural and frontier America, there are also unique strengths in a state such as Alaska. These include: the existence of vibrant social networks within communities; routine community-wide gatherings attended by a majority of members; shared culture and rituals displayed through song, dance, and drumming; meaningful inter-generational connections and respect for the wisdom and guidance of elders; a deep sense of spirituality; and a desire to honor that which is deemed of value from indigenous and non-indigenous cultures. The mental health and addiction problems of Alaskans must be understood and addressed within this context and the efforts to improve the behavioral health workforce must draw on these extraordinary assets.

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Weight Concern, Body Image, and Compensatory Behaviors in Rural Pregnant Smokers: A Preliminary Investigation

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INTRODUCTION

Health-risk behaviors, including drug use, sedentary behavior, and poor eating patterns, are among a number of factors contributing to health disparities within rural populations (Bennett, Olatosi, & Probst, 2008). Health education campaigns have stressed positive health behaviors, including

smoking cessation, exercise, proper nutrition, and attention to achieving and maintaining a healthy weight. Unfortunately, increased focus on weight may lead to excessive concern about weight and body image, resulting in engagement in unhealthy compensatory behaviors (Stice, 2002). The DSM-IV TR (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision) defines inappropriate compensatory behaviors as behaviors that are designed to prevent weight gain including self-induced vomiting or purging; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive

exercising (APA, 2000). Smoking has similarly been identified as a compensatory behavior (Saules, Pomerleau, Snedecor, Namemek Brouwer, & Rosenberg, 2004). Factors influencing the maintenance of compensatory behaviors that are frequently associated with eating disorders include elevated body mass index, body dissatisfaction, and body image disturbances (Stice, 2002).

Pregnancy is a time of significant body change, and as weight gain is necessary for adequate fetal development, how pre-existing weight and body concerns might be associated with compensatory behaviors during pregnancy is unclear. In addition, weight and shape concerns that are not necessarily present prior to pregnancy may emerge during the course of pregnancy (Soares, et al., 2009). To date, only a few studies have examined compensatory or eating disorder behaviors among pregnant women. Although weight and shape concerns are common among pregnant women, binge eating episodes are among the most prevalent eating disorder behaviors cited during pregnancy (Soares et al., 2009). Engagement in bingeing and other eating disorder behaviors are not only harmful to the mother but may be especially detrimental to child development, and mothers engaging in weight control behaviors have been found to be less concerned about their child having an atypical low weight (Astrachan-Fletcher, Veldhuis, Lively, Fowler, & Marcks, 2008). Research has shown that children of mothers with eating disorder tendencies weigh less (Conti, Abraham, & Taylor, 1998) and are at increased risk of food deprivation, failing to thrive in the first year of life, and for developing eating disordered behaviors themselves (Brinch, Isager, & Tolstrup, 1988).

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Weight and body concerns also contribute to the development and/or maintenance of smoking behavior. According to Borrelli and Mermelstein (1998), smokers are knowledgeable of the appetite-suppressing qualities of nicotine and often name weight control as a primary reason for the continuation of smoking. In fact, research has shown that women who quit smoking prior to or during pregnancy gain significantly more pregnancy weight than their smoking counterparts (Anderson, Blidner, McClemon, & Sinclair, 1984; Groff, Mullen, Mongoven, & Burau, 1997). Consequently, smoking during pregnancy is associated with significant complications, including increased risk of miscarriage, stillbirth, low birth weight, sudden infant death syndrome, and ectopic pregnancy (Roth & Taylor, 2001). Smoking while pregnant can also have numerous harmful effects on the developing child, including preterm delivery and low birth weight, as well as long-term health and developmental problems (Hofhuis, Jongste, & Merkus, 2003).

One of the most salient health risk behaviors in rural Southern Appalachia is the use of tobacco (Macnee & McCabe, 2004). Despite national prevention and intervention efforts, the prevalence of smoking remains high, especially among pregnant women residing in this area. Pregnancy smoking rates in Appalachia are well above the national average of eleven percent (Hamilton, Martin, & Sutton, 2004), and are documented as high as 50% in some of the most rural counties (Bailey, 2006). Weight concerns during pregnancy may be especially important to understand in rural populations where health risk behaviors, including obesity and smoking, are much more common than they are elsewhere (Bailey, 2006; Bennett et al, 2008). Little is currently known about how weight and body concerns are related to compensatory behaviors, including failure to weight gain, in rural pregnant women who smoke. With smoking common in this population, it may be that other harmful compensatory behaviors are engaged in during pregnancy as well. A greater understanding of these fac-



tors may aid in the development of more effective prevention and pregnancy intervention programs aimed at improving maternal and child health, including those that target smoking

The purpose of the current study, a small scale preliminary investigation, was to examine the relationship between pre-pregnancy weight/body image concerns and compensatory behaviors/weight gain among rural women who smoke during pregnancy. Greater pre-pregnancy weight concern and body image concern assessed retrospectively at entry to prenatal care were predicted to yield 1) greater engagement in compensatory behaviors at 3rd trimester, and 2) less weight gain from pre-pregnancy to 3rd trimester.

METHODS

Participants

Forty, primarily Caucasian, pregnant women were sampled from participants in an ongoing grant funded study, the Tennessee Intervention for Pregnant Smokers (TIPS) program. The TIPS program enrolls women receiving prenatal care at six practices, and the first 40 who completed both

the first and third trimester assessments and who smoked during pregnancy made up the sample for the current report. IRB approval was acquired for the study, and informed consent was obtained prior to enrollment.

Procedure

TIPS participants were eligible to complete four separate research interviews involving collection of demographic, health, and psychosocial information: one during the first trimester, one during the third trimester, one 6-8 weeks post-partum, and one 6-8 months post-partum. Data were also collected through prenatal and delivery medical chart reviews. For purposes of the current report, only select data from the first and third trimester interviews and from the prenatal chart review were used.

Measures

Weight and Body Image Concerns. Weight and body image concerns were assessed via the Weight Concern Scale (WCS; Borelli & Mermelstein, 1998) and Body Image Concern Inventory (BICI; Littleton, Axsom, & Pury, 2005) during the first trimester at entry to prenatal care. Both the WCS and BICI were designed to measure the level of concern individuals feel about their bodies. For purposes of the current study, women were instructed to reflect on pre-pregnancy concerns when completing these measures. The WCS consists of 6 questions, 5 of which assess weight and smoking as related to quit attempts. This measure has demonstrated acceptable internal consistency ($\alpha = .87$) and convergent validity ($r = .49, N = 100, p < .0001$) (Borelli & Mermelstein, 1998). The current study utilized the one general (non-smoking related) weight concern question (i.e., How important is losing weight or maintaining your current weight compared with other personal health concerns?) to represent weight concern.

The BICI is a 19-item measure, with three subscales, that assesses dys-

morphic concern including intense concern and preoccupation with perceived defects in physical appearance, excessive scrutiny or disguising of the defect, constant reassurance-seeking, and avoidance of social situations. Research suggests that the BICI is a reliable, valid, and user friendly tool for assessing dysmorphic concern, with utility in both research and clinical settings (Littleton, Axsom, & Pury, 2005). The total score was used in this study. Higher scores on both the WCS item and the BICI indicate greater weight or body image concerns.

Compensatory Behaviors and Pregnancy Weight Gain. Compensatory behaviors were assessed via the Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) administered during the third trimester. The EAT-26 was designed to assess engagement in behaviors related to eating disorders. The measure consists of a total score and three subscale (Dieting, Bulimia and Food Preoccupation, and Oral Control) scores. The EAT-26 has shown acceptable criterion-related validity (Garner, Olmsted, Bohr, & Garfinkel, 1982). The total EAT-26 score was used in this study. Higher total scores indicate greater engagement in compensatory behaviors or behaviors related to eating disorders (e.g., avoiding eating when hungry, eating diet foods, vomiting after eating).

Weight and height data were collected via self-report (of pre-pregnancy weight) at first trimester and via actual clinical measurement at third trimester and converted to body mass index [BMI;(kg/m²)] values. Pregnancy weight gain was calculated by subtracting third trimester actual BMI from pre-pregnancy self-report BMI. Therefore, a positive score indicated weight gain whereas a negative score indicated weight loss.

Background Variables. A number of potential control variables were assessed during the first trimester (i.e., age, income, education, marital status, number of pregnancies, pre-pregnancy weight, depression, and stress). These

data were collected as part of study interviews during pregnancy, and from the participants' medical charts. Depression and stress were assessed via surveys (i.e., Center for Epidemiologic Studies Short Depression Scale (CESD-10; Andresen, Malmgren, Carter, & Patrick, 1994)) and the Prenatal Psychosocial Profile (PPP; Curry, Campbell, & Christian, 1994), respectively), administered during the first pregnancy interview.

Data Analyses

All analyses were completed using SPSS software, and the alpha level for significance was set at .05. First, total scores on the BICI and EAT-26 were calculated for each participant. The difference in BMI (i.e., kg/m²) between self-report of pre-pregnancy weight and 3rd trimester weight was determined. Descriptive statistics were calculated, and correlation coefficients, chi-square analyses, and t-tests were used to examine bivariate relationships between variables of interest. Finally, multiple regression analyses were performed to assess whether WCS Question 1 and the BICI total scores predicted total EAT-26 scores and change in BMI. Background variables significantly associated with any predictor or outcome variable were included as covariates in the regression analyses.

Results

Demographic characteristics of the 40 participants are presented in Table 1. The average participant was just over 23 years of age, a high school graduate, unmarried, experiencing her second pregnancy, and had an annual family income of less than \$30,000. Correlations between potential covariates/background factors and study predictors and outcomes are shown in Table 2. Participant age, family income, and marital status were not significantly related to any of the predictor or outcome variables of interest, and thus were not included in subsequent regression analyses. Education level, number of pregnancies, depression, pre-pregnancy BMI, and stress were

all significantly and positively associated with body image concern, while increasing pre-pregnancy BMI and levels of stress predicted a greater degree of weight concern. None of the background variables were significantly associated with either compensatory behaviors or pregnancy weight gain, with the exception of pre-pregnancy BMI which was negatively related to pregnancy weight gain.

In our first hypothesis, we predicted that greater pre-pregnancy weight concern and higher levels of body image concern in the first trimester would be associated with greater engagement in compensatory behaviors in the third trimester. Bivariate correlations addressing this question are presented in Table 2. Greater weight concern and body image concern were both significantly and positively related to compensatory behaviors. Next, regression analyses were performed to examine the relative contribution of both weight concerns and body image concerns in predicting compensatory behaviors, while controlling for potentially confounding variables. Results are presented in Table 3. Background variables were entered in the first step of the regression and accounted for just under 15% of the variance in compensatory behavior scores, a non-significant amount. Only number of pregnancies was significantly associated with compensatory behaviors, with a greater number of pregnancies predicting lower levels of compensatory behaviors. The weight concern and body image scores were entered together on the second step. Together, these two variables accounted for nearly 45% of the variance in compensatory behaviors, a significant amount. When examining individual contributions to prediction, however, increased body image concerns, but not weight concern, assessed at entry to prenatal care significantly predicted greater levels of engagement in compensatory behaviors at third trimester.

In our second hypothesis, we predicted that greater pre-pregnancy weight concern and higher levels of body image concern in the first trimester would

TABLE 1. Background characteristics of study participants

CHARACTERISTIC	MEAN (SD) OR PERCENT
Age (years)	23.1 (5.0)
Number of pregnancies	2.4 (1.9)
Marital status (% married)	27.5%
Education (highest level achieved)	
Less than a high school diploma	32.5%
High school diploma	50.0%
Education beyond high school	17.5%
Annual household income	
< \$5,000	20.0%
\$5,000 - \$29,000	68.0%
\$30,000 +	12.0%

N = 40**TABLE 2. Correlations among study variables**

	Weight Concern	Body Image Concern	Compensatory Behaviors	Weight Gain
Background Variables				
Age (years)	.17	.19	-.17	-.03
Income (\$/year)	.03	.10	.21	-.13
Education (years)	.11	.32*	.21	.25
Marital status (married vs. single)	.09	-.03	-.15	.07
Number of pregnancies	.01	.58**	-.21	-.13
Depression (CESD-10 total)	.25	.51**	.16	-.09
Stress (PPP Stress Scale total)	.33*	.39*	.07	-.17
Pre-pregnancy weight (BMI)	.77**	.50**	.20	-.41*
Predictors				
Weight concern (WCS question 1)	–	.68**	.40*	-.24
Body image concern (BICI total)	–	–	.67**	-.01
Outcomes				
Compensatory behaviors (EAT-26 total)	–	–	–	.13
Pregnancy weight gain (change in BMI)	–	–	–	–

N = 40 * p<.05; ** p<.01*Note: Values represent Pearson correlations or point-biserial correlations.*

be associated with less pregnancy weight gain by the third trimester. Bivariate correlations addressing this question are presented in Table 2. Neither weight concern nor body image concern was significantly associated with pregnancy weight gain. Thus, additional controlled analyses were not performed.

DISCUSSION

Findings from the current study reveal that elevated levels of body image concerns are associated with greater engagement in compensatory behaviors later in pregnancy in this rural sample of pregnant smokers. This association remained after controlling for potentially confounding background factors, including depression and stress levels. Interestingly, weight concerns were comparatively less predictive of compensatory behaviors, and pre-pregnancy weight was not significantly associated with compensatory behaviors. Additionally, neither weight concern nor body image concerns significantly predicted pregnancy weight gain in this preliminary investigation.

Weight and body image concerns have been found to be associated with smoking behavior and with engagement in unhealthy weight control practices in previous studies. The current study sought to better understand these factors in rural pregnant women. Increased understanding in this group is especially important for several reasons. First, rates of smoking among pregnant women in rural areas are higher than national averages (Bailey, 2006), and individuals residing in rural areas are also at increased risk for engagement in other poor health behaviors (Bennett et al., 2008; Macnee & McCabe, 2004). Second, pregnancy can be a time of high stress because of the body and lifestyle changes it necessitates (Astrachan-Fletcher, 2008), and it is important to understand health behaviors that may influence not only the health of the mother but the unborn child. Third, identification of risk and protective factors concerning weight-related issues may aid in the

TABLE 3. Summary of regression analysis predicting compensatory behaviors

Variable Entered	R	R ² change	p ^a	Beta ^b	p ^c
Background Variables	.382	.146	.421		
Education				-.165	.241
Number of pregnancies				-.308	.019
Depression				-.134	.479
Stress				-.092	.609
Concerns	.773	.451	<.001		
Weight				-.030	.895
Body Image				.929	<.001

N = 40

Note: Background variables were entered as a group on the first step, followed by the entry of both weight concern and body concern on the final step.

- a significance of F test for R² change
- b Beta from final step of the model with all variables entered
- c significance of Beta

development of prevention/intervention programs targeting pregnant women who smoke.

Similar to previous findings linking body image and eating disorder behaviors (Stice, 2002), the current study found body image concerns predicted engagement in compensatory behaviors among rural pregnant women. Thus, pregnant women who are most concerned about their body image are more likely to engage in unhealthy practices such as purging, laxative abuse, and excessive exercise. Although weight and body image concerns did not predict change in weight, we did find that pregnant women's weight prior to pregnancy was associated with pregnancy weight gain. Specifically, higher pre-pregnancy weight was associated with decreased pregnancy weight gain. This may be the result of medical recommendations for lower levels of pregnancy weight gain for women who are overweight

prior to pregnancy, and could also be an attempt to compensate for being overweight.

The fact that greater weight concern did not significantly predict greater compensatory practices in the current sample was somewhat surprising. It may be that the transitions in the body shape have a greater impact on mothers than the expected weight gain. Recent research suggests that eating disorders are common in individuals with body dysmorphic disorder (BDD) or those with distressing or impairing concerns with imagined or minor defects in physical appearance (Rufolo, Phillips, Menard, Fay, & Weisberg, 2006). Further, BDD symptoms have been found to predict smoking in college age women (Stickney & Black, 2008). Together, these findings suggest that future research may aim at better understanding the effects of body change during pregnancy and clinician's efforts to prepare mothers

for bodily changes in addition to weight gain may be worthwhile.

This preliminary investigation has some limitations but also provides directions for future research. In the current study, the small sample size limited statistical power thus emphasizing the need for additional research before definitive conclusions can be drawn based on the non-significant findings in this study. The use of self-report for pre-pregnancy BMI was an additional limitation. Women do not always accurately report their weight (Meyer, McPartlan, Sines, & Waller, 2009) therefore objective assessment of pre-pregnancy BMI, as was conducted in third trimester, is preferable whenever possible. We intentionally restricted the current sample to smokers. Future studies may examine these associations in pregnant women who do not smoke during pregnancy in an effort to understand potential differences between these two groups. Future studies may also wish to examine these same questions in more urban samples for further generalization of these findings. It is difficult to explain why body image but not weight concerns predicted compensatory behaviors in the current sample. Future studies may aim at understanding the potential differences between these two constructs by utilizing additional measures for capturing these factors. Consideration may also be given to methods for gaining accurate retrospective accounts of these concerns. Finally, the EAT-26 was designed to assess symptoms and characteristics of eating disorders. Although many of the items assess compensatory behaviors as described by the DSM-IV TR, other items (e.g., preoccupation with being thinner, going on eating binges) may be assessing other constructs suggesting the need to consider other more specific measures of compensatory behavior.

To our knowledge, the current study was the first to examine whether weight/body image concerns predicted higher engagement in compensatory behaviors among rural pregnant

women who smoke. The findings have important implications for programs aimed at smoking cessation or promotion of optimal health in pregnant women. Specifically, screening for these concerns may allow for identification of individuals that may benefit from techniques aimed at facilitating success with cessation and promoting healthy weight control practices over the course of pregnancy.

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Providing Mental Health Services to Women Diagnosed with Depression in Rural Utah Communities: Using Technologically Assisted Psychotherapeutic Intervention as the Delivery Medium

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INTRODUCTION

Twelve million women in the United States experience depression each year, with the rate steadily increasing. Women are diagnosed with depression twice as often as men (12% v. 6.6%), and have a 20% lifetime risk of major depression occurring (National Institute of Mental Health, 2009). While the most negative and permanent consequences of depression is suicide, it is also correlated with substance use and/or abuse (Cottler, Campbell, & Krishna, 2005), negative employment status, earning capability, and benefits (Chen, Subramanian, Acevedo-Garcia and Kawachi, 2005; Emptage, Sturm, and Robinson, 2005; Szádóczy, Sándor, János, & Füredi, 2004), and negative relationship well-being and attachment security in romantic relationships (Lansford, Antonucci, and Akiyama, 2005; Whiffen, 2005).

Research suggests that increased rurality and remoteness, as well as



living in an agricultural community, are variables that have a significant association with increased suicide rates for both adolescents and adults (Goldcamp, Hendricks, & Myers, 2004). Beeson (2000; see also NCHS, 2001) reports that the rate of suicide in rural communities, compared to those in urban settings, has

increased over the past two decades (17.9/100,000 v. 14.9/100,000, respectively). Thus, when considering the prevalence of suicide in rural v. urban communities, it logically follows that the rate of depression would be greater (Hirsh, 2006). There is a complicating factor, however, that makes depression in rural communities a critical psychological issue, often leaving rural residents to unnecessarily suffer, and maybe the underlying cause for the higher suicide rate. This factor is referred to as the 3 A's, common barriers to mental health service delivery, availability, accessibility, and acceptability (Fortney, Rost & Warren, 2000; Fortney, Rost, Zhang, & Warren, 1999; Hoyt, Conger, Valde, & Weihs, 1997; Mohatt, Bradley, Adams & Morris, 2005). This research focuses on treatment of depression experienced by adult women residing in rural communities using a unique delivery medium, Technologically Assisted Psychotherapeutic Intervention (TAPI), to provide Cognitive Behavioral Therapy (CBT). It is suggested that

TAPI can effectively transcend the barriers of availability and accessibility.

BARRIERS TO RURAL MENTAL HEALTH SERVICES

Whereas availability is conceptualized as providing a sufficient number of clinicians to meet the mental health needs of a population and offering a broad range of evidence based interventions, accessibility refers to the capacity of an individual to obtain services, and is directly related to knowledge, knowing “when one needs care, and where and what care options are available (Mohatt, et al., 2005, p. 5); affordable transportation (Lambert & Agger, 1995); and financing of services (Mueller, Ortega, Parker, Patil, and Askenazi, 1999) .

TRANSCENDING AVAILABILITY AND ACCESSIBILITY

Although the primary use of the Internet for the delivery of psychotherapeutic services has been for consultation with primary caregivers and medication updates (Gibson, Morley, & Romeo-Wolff, 2002), Stoffle (2002) reported on a “chat” format where clients communicate with a therapist online much as one would with another person in a chat room or through instant messaging, Yager (2002) indicated that some therapists have used email to answer client’s questions, Bischoff et al. (2004) provided psychoeducational programs to underserved populations in rural communities using interactive technology, and Collie, Curbranic, and Long (2002) provided art therapy using image making through the Internet. While telemedicine is becoming commonplace for consultation, delivery of information, gathering data and actual intervention, the use of this medium for providing face-to-face therapy is in its infancy.

USING TECHNOLOGICALLY ASSISTED PSYCHOTHERAPEUTIC INTERVENTION AS A MEDIUM TO TREAT DEPRESSION IN WOMEN RESIDING IN RURAL COMMUNITIES

Technologically Assisted Psychotherapeutic Intervention (TAPI) is not an intervention, but rather the delivery method through which Cognitive Behavioral Therapy (CBT) may be provided to rural residents. TAPI uses the computer and Internet to provide therapy with the clinician located at an office some distance from the rural residence of the client. TAPI simulates “face-to-face” therapy, allowing clinician and client to see each other in “real time” using a video camera, and enhances the number of methods available to deliver mental health services. For example, clinician and client may use a white board to illustrate points for visual purposes, power point presentations to demonstrate metaphors, and assessments can be completed. It is hypothesized that TAPI has the ability to transcend the barriers of availability and accessibility.

Cognitive-Behavioral Treatment (CBT) has been documented as one of the most successful treatment methods for those suffering from depression (Wright, Basco, & Thase, 2006). CBT attempts to modify or replace schema that produce emotional distress and are behaviorally detrimental. Regier and colleagues (1988) indicated that approximately two-thirds of the individuals in the U.S. with clinical symptoms of mental illness, including depression, receive no care at all for such symptoms (see also Vogin, 2004). With the lack of therapists in rural communities, and the distance one must often travel for therapy, it must be concluded that the percentage of depressed persons receiving psychotherapeutic services in rural areas is most likely less than for those residing in urban areas.

If TAPI can effectively provide CBT to rural residents, then of interest is whether or not women, who have reported depressive symptoms and reside in rural Utah, report changes in their symptoms of depression and if these changes can be sustained three and six months post-intervention.

METHODS

Sample

A purposive-convenience sample of 25 adult women were provided with initial assessment measures [Sociodemographic Inventory (SOI-I), University of Rhode Island Change Assessment (URICA), Beck Depression Inventory-II (BDI-II), Geriatric Depression Survey-5 (GDS-5), and Outpatient Questionnaire 45.2 (OQ 45.2)]. Of the twenty-five, seventeen met the inclusion criteria. All participants were married and Caucasian with a mean age of 39.9. Ten of seventeen were using psychotropic medications and two had been previously hospitalized. Most reported their SES as white collar and reported a family income of between \$41,000 and \$100,000.

PROCEDURES

Potential participants were solicited through an article addressing depression in their local newspaper that included an invitation to participate in the study. Inclusion criteria included residence in a rural Utah community, documented symptoms of depression as indicated by a mild to moderate (14 - 28) or moderately severe depression score (≤ 35) BDI, GDS-5 and SDI scores verifying depression, a URICA score suggestive of motivation to change (Finnell, 2005; Rochlen, Rude, & Baron, 2001), and no indication of loss of cognitive function as measured by the Mini Mental Status Examination. Informed Consent, including details of the study, eligibility requirements, and benefits and risks, was discussed prior to inclusion. Participants were provided 10, one-hour sessions of

Cognitive Behavioral Therapy through the medium of TAPI by Marriage and Family Therapy Interns, a clinical social worker and the PI. The CBT approach used in this study, while grounded in the work of Aaron Beck (Beck, 1963, 1964, 2005), Albert Ellis (Ellis, 1976, 1994; Ellis & Dryden, 1997), and Donald Meichenbaum (Meichenbaum & Turk, 1987), also included second generation elaborations and interventions (Wright et al., 2006; see also Datillio, 1998; Wenzel, Brown, & Beck, 2004).

To enhance confidentiality, the Internet program Macromedia Breeze was selected because it “performed well with respect to data validation and enforcement of access control to resources such as content, courses and meetings” (@ stake, 2004) and “as a communication platform, is safe and secure. If it is a meeting between two individuals, only the concerned parties can authenticate and gain access to the session” (Marc Hugentobler, personal communication, April 6, 2006). Next, a PowerPoint presentation on confidentiality was shown to Regional Campus employees who may have contact with participants and an agreement of confidentiality was signed. Finally, a sound screen was provided to be placed outside of the office area to muffle any sound that may come through during therapy.

MEASURES

Sociodemographic Instrument (SOI-I). The *SOI-I* collected basic demographic data in five areas; *personal characteristics* (age, gender, marital status, ethnicity, years of schooling, educational level); *usual living situation* (alone, with relatives, type of accommodation, family composition); *employment and income* (employment status, occupational category, days of work lost during the past year, level of income); *service receipt* (hospital inpatient, outpatient/community-based service contacts [mental health, social services, and primary care], criminal justice service contacts); and *medical profile* (recent or chronic illness[es], name/type of medication, dosage level and frequency).

University of Rhode Island Change Assessment (URICA). The *URICA* is a 32-item, self-administered questionnaire addressing readiness to change (McConaughy, Prochaska, & Velicer, 1983). Items use a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. Greenstein, Franklin, and McGuffin (1999) reported a coefficient alpha of .79 for the total *URICA* and Cronbach’s alpha of .77 for Precontemplation, .80 for Contemplation, .84 for Action, and .82 for Maintenance. Field, Adinoff, Harris, Ball & Carroll (2004; Blanchard, Morgenstern, Morgan, Labouvie, & Bus, 2003) document construct validity; however, results are more mixed when considering predictive validity. For example, whereas Dozios, Westra, & Collins (2001, as well as Greenstein, et al., (1999) reported on predictive validity, Blanchard et al., (2003) found that when examining the URICA motivational subtypes that it did not predict change. On the other hand Field et al. (2004) indicate that predictive validity was limited to drug and alcohol patients. Other research has suggested predictive validity in other areas beyond drug and alcohol such as in the treatment of pathological gamblers (Petry, 2005); readiness of clients with disabilities to seek out jobs (Mannock, Levesque, Prochaska (2002), and self management of arthritis (Keefe, Lefe-

bvre, Kerns, Rosenberg, Beupre, Prochaska, Prochaska, Caldwell, 2000).

Outcome Questionnaire (OQ 45.2). The OQ 45.2 is comprised of three subscales: “subjective discomfort (SD; 25 items), interpersonal relationships (IR; 11 items), and social role performance (SRP; 9 items)” (Lambert et al., 1996). Each subscale item is responded to on a 5-point Likert scale (range 0 - 4). Test-retest reliability coefficients (calculated on a college student population) for SD, IR, and SRP are .78, .80, and .82 respectively. Internal consistency scores for students and patients (in parentheses) for SD, IR and SRP scores are .92 (.92), .74 (.74), and .70 (.71), respectively. Concurrent validity for the OQ 45.2 and its individual domains with the criterion measures were all significant at the .01 level of confidence or greater. Kadera, Lambert, and Andrews (1996) found IR and SRP scores to have construct validity with scores significant beyond the .001 level of confidence.

Mini Mental Status Examination (MMSE). The *MMSE* was used for assessing cognitive impairment that might interfere with therapy. Reliability for the *MMSE* is difficult to ascertain due to the variation in those who it is administered to; however, in a standardized format, inter-rater variance



was reduced by 76% and the intra-rater variance was reduced by 86% (Molloy & Standish, 1997). Predictive validity has been reported by Lacritz & Hom (1996).

Short Depression Interview (SDI).

The *SDI* consists of 16 obligatory and 31 facultative questions answered by the client, with five questions the clinician uses to assess ‘significant distress or impairment,’ ‘not due to substance or disease,’ and ‘not entirely due to bereavement’. The *SDI* has been found to have good reliability (test-retest kappa 0.63 for DSM-IV and kappa 0.71 for NHG major depression; Terluin et al., 2002).

Beck Depression Inventory-II (BDI-II).

The *BDI-II* is a 21-item self-report rating inventory measuring characteristic attitudes and symptoms of depression (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Alpha coefficients for the *BDI-II* scores have been reported ranging from .73 to .92, with a mean of .86; Alpha coefficients for psychiatric and non-psychiatric populations, are .86 and .81 respectively. Split-half reliability coefficient of .93 has been determined for the *BDI* (Beck, Steer, & Garbin, 1988). A meta-analysis of studies addressing the revised *BDI-II*'s psychometric properties by Richter, Werner, Heerlien, Kraus, and Sauer (1998) yielded evidence of high content validity, and validity in differentiating between depressed and non-depressed people.

Geriatric Depression Survey-5 (GDS 5).

The *GDS-5*, a shortened version of the 30-item *GDS* and *GDS-15*, was designed to assess depression in older adults taking into consideration the fact that recognition of depressive symptoms as a person ages is increasingly difficult because of “somatic co-morbidities and depressive symptoms may be dismissed as natural consequences of frequently occurring negative life events and illnesses” (Vinkers, Gussekloo, Stek, Westendorp, and Van Der Mast, 2004, p. 80). Using clinical evaluation as the gold standard for depression, the 5-item *GDS* (compared with the 15-item *GDS*

results shown in parentheses) had a sensitivity of .97 (.94), specificity of .85 (.83), positive predictive value of .85 (.82), negative predictive value of .97 (.94), and accuracy of .90 (.88) for predicting depression (Hoyl et al., 1999).

ANALYSES

The basic research design was: **S T₁ X T₂ T₃ T₄**, where S represents screening, T represents times of depression assessment and X signifies 10 one-hour sessions of CBT intervention with TAPI. Two clinical effectiveness questions were examined: “Will women who are treated with CBT delivered through TAPI report, at the conclusion of therapy, a decrease in depressive symptoms?” and “Is reported change sustained three- and six-month post therapy?” Comparison of derived mean scores with cutoff scores for each of the dependent variables was the initial method for examining for clinically significant change. Z scores were calculated and examined for statistical significance according to Jacobson and Truax (1991; see also Kazdin, 1982; Schuster, 1993). Recognizing the inherent limitations due to sample size, a repeated measures design, permitting an assessment for statistical significance within and between subjects, and the calculation of least significant means was helpful when explaining the clinically significant finding.

TABLE 1. Pre-test mean scores

Measurement	N	Mean	sd
Mini Mental Status Examination (MMSE)	17	29.6	0.61
Outpatient questionnaire (OQ 45.2)			
Total	17	98.4	14.46
Subjective distress (SD)	17	59.0	10.19
Interpersonal relations (IR)	17	22.6	5.93
Social role performance (SRP)	17	16.8	2.78
University of Rhode Island Change Assessment (URICA)			
Precontemplation	17	1.7	0.53
Contemplation	17	4.5	0.34
Action	17	3.7	0.40
Maintenance	17	3.4	0.68
Beck Depression Inventory	17	33.8	7.59
Structure Depression Inventory	17	9.0	9.37
Geriatric Depression Scale-5	17	3.8	8.46

TABLE 2. Depression mean scores across time

Measure	N	Mean	sd
Beck Depression Inventory			
Pre-session	17	33.80	8.46
5th session	17	15.13	12.05
Post therapy	15	8.27	11.20
3 month post therapy	17	7.67	7.37
6 month post therapy	16	7.60	9.57
Structured Depression Inventory			
Pre-session	17	9.13	1.51
Post therapy	15	2.27	1.10
3 month post therapy	17	2.87	.99
6 month post therapy	16	1.93	1.03
Geriatric Inventory-5			
Pre-session	17	3.87	1.51
Post therapy	15	.73	1.10
3 month post therapy	17	1.29	.99
6 month post therapy	16	.73	1.03

RESULTS AND DISCUSSION

This study assessed if women diagnosed with moderate or moderately severe symptoms of depression, and residing in rural Utah, would benefit from CBT that was provided through TAPI. Data for the *BDI* were collected at pre-therapy, 5th session, post therapy, three months and six months post therapy. Data from the *SDI* and *GDS-5* were collected at pre-therapy, post therapy, three months and six months post therapy. Pre-test means are presented in table 1.

¹ BDI cutoff scores in brackets

Changes in Depression Scores: Examining for Clinical Significance

Multiple measures of depression (*BDI*, *SDI* and *GDS-5*) were used to validate change in reported symptoms of depression. Data illustrating change in mean depression scores are presented in Table 2. Combined *BDI* mean scores pre-assessment to 5th session, suggested a decrease in depression from moderately severe depression [> 29] to mild depression [14 – 19]. At the conclusion of therapy mean scores

were indicative of minimal depression [0 – 13]. *BDI* mean scores 3 and 6 months post therapy suggested that change was sustained, arguing the fact that women continued to use the skills. *SDI* and *GDS-5* mean scores, pre-assessment, suggest all women would have been diagnosed with a major depressive disorder on both scales ($\bar{x} \geq 8$, and *SDI* ≥ 3 ; respectively); however at the conclusion of therapy, and 3 and 6 month post therapy none of the women would have been diagnosed with such. Of interest is the fact that at 6 months post-therapy the *SDI* mean scores were at the lowest level; supportive of the notion that the women continued to work on areas of depression measured by this instrument.

When examining the *BDI* scores, it is noted that there was a continued decrease in reported symptoms of depression from pre-assessment through 6 months post therapy. Group mean scores for the *SDI*, similar to the *BDI*, demonstrated an initial decrease in reported symptoms of depression. Although there was a modest increase in depression at 3 months post therapy, by the 6th month this decrease was no longer recognized. As with the *SDI*, group mean scores for the *GDS-5* suggest a modest increase in depres-

TABLE 3. Clinical change illustrated by Z scores by case

Case	<i>BDI</i>				<i>SDI</i>			<i>GDS-5</i>		
	Pre-5th	Pre-post	Pre-3 post	Pre-6 post	Pre-post	Pre-3 post	Pre-6 post	Pre-post	Pre-3 post	Pre-6 post
1	-2.6	-3.4	-3.9	-3.0	-3.1	-3.0	-3.9	-2.6	-2.2	-2.7
2	-0.36	-2.9	-2.8	-2.2	-1.5	0.59	-0.97	-2.0	-1.6	-2.7
3	-2.2	-1.7	-3.1	-3.1	-2.5	-2.7	-2.6	-2.0	-2.2	-2.1
4	-2.5	-2.0	-2.1	-1.9	-1.9	-1.2	-2.6	-1.5	-1.6	-1.6
5	-2.8	-3.2	-3.8	-2.6	-2.5	-1.8	-2.3	-2.6	-2.2	-2.7
6	0.24	0.47	-1.4	-0.73	0.00	-0.59	0.32	0.00	-0.54	-0.53
7	-1.3	-0.85	-1.0	-1.1	-0.31	-0.59	-0.65	-0.00	0.54	0.00
8	-3.1	-2.5	-3.1	-2.0	-2.5	-2.1	-2.6	-1.0	-0.54	-0.53
9	-3.0	-4.2	-4.6	-3.6	-2.8	-3.0	-3.2	-2.6	-2.7	-2.7
10	-3.0	-4.5	-5.2	-3.9	-2.8	-2.7	-3.3	-2.0	-2.2	-2.1
11	-2.6	-2.4	-2.9	-2.0	-1.2	-2.4	-2.6	0.00	0.00	-0.53
12	-0.60	-2.8	-2.4	-0.97	-3.4	-2.4	-0.97	-2.6	-1.6	-1.1
13	-2.4	-2.0	-2.3	-1.7	-2.8	-3.3	-3.6	-1.5	-1.6	-1.6
14	-5.1	-1.9	-2.9	-3.1	-2.8	-1.8	-2.9	-1.0	-0.54	-1.6
15	-2.2	-2.4	-1.9	-2.2	-1.9	-1.3	-2.6	-2.6	-1.6	-2.7
16	-2.9	-2.6	-3.2	-2.3	-2.5	-2.7	-2.9	-----	-1.6	-1.6

sive symptoms 3 months post therapy followed by a decrease at 6 months post therapy. In sum, these data suggest that women who received CBT through TAPI found success in decreasing their symptoms across time.

Z scores were calculated for clinical significance (Jacobson & Truax, 1991) and are reported in Table 3. A z score $\geq \pm 1.63$ ($p \geq .05$) was determined to be sufficiently conservative to demonstrate clinical significance. When reviewing the z scores the data reveal that two women (cases 6 and 7), though decreasing in their depression scores, did not remediate their symptoms sufficiently to be identified as having made clinically significant improvement. When examining the pre-assessment depression scores, it was determined that these women would have been diagnosed with severe depression (*BDI* ≥ 34). Literature suggests that CBT is most effective for those with moderately severe or less depression (Beach, Dreifuss, Franklin, Kamen, & Gabriel, 2008). These women did not meet this criterion, and as such, this may have been reason that they did not show clinically significant improvement. It should be noted that this finding was consistent across all three measures of depression.

One woman's z score on the *BDI*, (case 12) suggested improvement at the conclusion of therapy and three months post therapy; however, 5th session and 6th month assessments demonstrated no clinically significant change. The remaining 13 participants reported clinically significant improvement after therapy assessment through the 6th month assessment, suggesting that they learned, integrated and, most likely, were using the CBT skills taught to manage their depressive symptoms. In a telephone conversation (December, 2008) one of the women reported that while she does experience some Seasonal Affective Disorder, active use of the skills helps her maintain a healthy emotional status.

While there is more variation in z scores for the *SDI* than the *BDI*, at 6 months post-therapy 12 of 16 women reported clinically significant improvement in their symptoms of depression. According to *GDS-5* scores, two individuals showed no clinically significant improvement (cases 8 and 11). When looking at their depression scores pre-test and across time, these women began with no depressive symptoms as reported by this measure. Case 7 reported improvements initially on the *GDS-5*, but by 6 months post-therapy

the improvement was negligible. Overall, six months post therapy 11 of the 16 women reported clinically significant improvement in their depressive symptoms as measured by the *GDS-5*.

Between subjects' analyses for the *BDI*, *SDI*, and *GDS-5*, illustrated in Tables 4, 5, and 6, suggest no significant differences in subjects regardless

of the phase in time at which they were compared. In contrast, the within subjects results indicate a statistically significant change in depression scores between data collection periods. No significant interaction effect, between time period and phase, was found.

Least Significant Difference Score results for significant relationships for the *BDI*, *SDI* and *GDS-5* are presented in Table 7. The *BDI* was assessed at the 5th session, identified in the table as Time 2, whereas *SDI* and *GDS-5* assessment began at the conclusion of therapy. Clinically, the *BDI* was administered on multiple occasions to track therapeutic change and adjust the therapeutic strategy as needed; however as was demonstrated, change was significant and in the direction of desired change. These data suggest that statistically significant change in depression scores for the *BDI*, *SDI* and *GDS-5* occurred at specified time periods.

In summary, women residing in rural communities experience depressive symptomatology at about the same rate as do those residing in urban communities. While the stressors associated with the symptoms may differ, residents of rural counties are less likely to have mental health support available and accessible. Results indicate that

clinically significant changes in symptoms of depression were evidenced for the majority of the women. Further, changes continued 3 and 6-month post therapy, suggesting that the women were able to integrate the skills into their day-to-day life, remaining, for the most part, symptom-free. Statistically significant findings supportive of clinical improvement is similar to those noted in face-to-face therapy Butler, Chapman, Forman & Beck (2006). If depression is a debilitating mental illness affecting rural women, many of whom do not have access to therapy services without significant cost beyond the fee for service, then TAPI may be an alternative therapeutic medium for reaching out to women in rural communities.

CONCLUSION

Research suggests that 32% of U.S. residents reside in rural areas and their mental health services are compromised by availability, accessibility, and acceptability (Mohatt et al., 2005; Sawyer et al., 2006; Stamm et al., 2003). This novel research demonstrates that it is possible to provide Cognitive Behavioral Therapy through the medium referred to as TAPI to women diagnosed with depression and residing in rural Utah with a positive clinical outcome.

Availability of Mental Health Services in Rural Communities

Although there exists problems with availability of mental health services in rural communities (Hauenstein et al., 2009; Hauenstein, Petterson, Rovnyak, Merwin, Heise, & Wagner, 2006; Mohatt, et al., 2005), this research demonstrated that CBT delivered through the medium of TAPI was clinically and statistically effective in remediating symptoms of depression. It is suggested that demonstrated clinical effectiveness will encourage clinicians to reconsider their practice of psychotherapy, perhaps with increased willingness to extend their urban practices to rural residents. It is also posited that demonstrated success of providing psychotherapy with TAPI may positively influence recruitment

TABLE 4. Analysis of Variance for Beck Depression Inventory (*BDI*)

Source	df	F	p
Between subjects			
Phase	1	.623	.444
S within group error	13	(276.64)	
Within subjects			
<i>BDI</i>	4	34.031	.000***
<i>BDI</i> X phase	4	1.060	.385
B X S within group error	52	(54.466)	

Note: Values enclosed in parentheses represent mean square errors.

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

TABLE 5. Analysis of Variance for the Structured Inventory (*SDI*)

Source	df	F	p
Between subjects			
Phase	1	.002	.967
S within group error	13	(13,967.00)	
Within subjects			
<i>SDI</i>	3	38.649	.000***
<i>SDI</i> X phase	3	1.917	.143
B X S within group error	39	(4.374)	

Note: Values enclosed in parentheses represent mean square errors.

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

TABLE 6. Analysis of Variance for the Geriatric Depression Scale-5 (*GDS-5*)

Source	df	F	p
Between subjects			
Phase	1	.292	.598
S within group error	13	(2.545)	
Within subjects			
<i>SDI</i>	3	30.554	.000***
<i>SDI</i> X phase	3	.167	.918
B X S within group error	39	(1.091)	

Note: Values enclosed in parentheses represent mean square errors.

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

TABLE 7. Least Square Difference Scores for the BDI, SDI, and GDS-5 at Assessment Periods

Scale	Time 1	Time X	Mean Difference (time 1 - time X)	Std. error
Beck Depression Inventory	1	2	18.357***	2.678
		3	25.223***	3.280
		4	25.955***	2.660
	4	2	-7.598*	2.858
Structured Depression Inventory	1	3	6.571***	.799
		4	6.143***	.921
Geriatric Scale-5	1	3	3.000***	.535
		4	2.500***	.497
	2	4	-.500*	.210

Note: Time 1 - Pre-test; Time 2 = 5th session; Time 3 = Post therapy; Time 4 = 3 months post therapy

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$ **** $p \leq .000$

and retention of clinicians to the providing of mental health services to rural residents. First, clinicians' could remain in their present setting and connect with clients via the Internet or dedicated T1 lines. Next, clinicians concerned with insufficient diversity of clientele may continue to bring clients into their practice from the urban community. Third, in that clinicians would remain in their current community, there would be no diminishing of clinical (e.g., sharing call, consultation, or supervision) or community (e.g., entertainment and recreation) resources. Finally, concerns about dual relationships would be reduced because rural clients would reside hours away from the clinician, thus the likelihood of meeting or socializing with them would be considerably less than with those with whom they are presently providing services.

In summary, positive clinical outcome of therapy offered through TAPI opens an avenue for clinicians with a variety of mental health specialties to reach out to an underserved population. Once clinicians are committed to the practice of rural mental health, the barrier of availability is transcended.

Accessibility of Mental Health Services in Rural Communities

Accessibility refers to an individual's access to mental health services and is directly related to knowledge,

transportation, and financing (Mohatt, et al., 2005; Mueller et al., 1999; New Freedom Commission on Mental Health Subcommittee on Rural Issues, 2004). TAPI as a delivery modality is new to rural communities; however the success of TAPI in the communities where this study was completed resulted in the local newspapers publishing articles on the project discussing TAPI as an alternative therapy delivery modality for the treatment of depression and anxiety, couples issues, and family problems.

If clients are unable to travel to where services are offered due to distance or cost, then they may silently "suffer" out their malady. TAPI offers services at local agencies such as extension facilities and hospitals where greater access is possible. In a recent anxiety study a computer system was set up in the home of an agoraphobic (Farmer, 2010; Openshaw & Farmer, 2010). Providing ACT, with TAPI as the service delivery medium, enabled her to be involved in therapy and at a point in the therapeutic process, she was able to leave her home and attend several remaining sessions at the agency. Thus, TAPI made services both available and accessible to one whose access was restricted by mental illness.

The final obstruction to accessibility has to do with the costs involved with accessing therapy. Many rural

residents not only have their co-pay to meet, but they must travel long distances to receive services. With TAPI, cost of travel and loss of work time are significantly reduced; as such, for rural residents the overall cost of mental health services are reduced, thus directly affecting accessibility. Of recent importance is the increased recognition of this art of therapy by insurance companies. For example, Magellan Behavioral Health, Regence Blue Cross and Select Health have made statements indicating that the use of teletherapy for the purpose of providing mental health services can be reimbursed if there is a diagnosable condition without the use of specialized coding. This movement by several large insurance companies opens the way for more services to be provided to rural residents, thus decreasing the overall cost if they must leave their community for mental health services and giving them an alternative to traveling for their therapy.

In summary, while TAPI appears to be a viable and credible method of reaching out to rural populations by transcending many of the factors associated with the barriers of availability and accessibility, more research is needed to substantiate feasibility, satisfaction, and outcome. As more research is acquired, a standard of care, grounded in empirically based data will evolve.

Limitations

As a preliminary study, limitations would be expected; in this study three are of significance. First, although the study utilized a convenience sample, it mimicked what we find in real-life therapy where clients most often seek out services and participate voluntarily. Next, was the analytic use of ANOVA with a small sample size. While a small "n" design was the appropriate statistical method to analyze the data, using a repeated measures test such as the ANOVA to support these findings usually requires a larger sample size. That therapy took place in two rural Utah communities and targeted one diagnosable mental illness, depression, may be seen as a limitation is one con-

siders the ability to generalize the findings. While limitations exist, the findings provide important information that can be used as a point of departure for future research and clinical practice using TAPI as an intervention medium.

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National Association for Rural Mental Health

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