THE DEVELOPMENT AND INITIAL VALIDATION OF THE ENVIRONMENTAL JUSTICE ADVOCACY SCALE

by

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The purpose of this dissertation was to develop and conduct initial validation procedures for the Environmental Justice Advocacy Scale (EJAS). Environmental justice refers to the equitable distribution of environmental risks and benefits across diverse groups in terms of the development, implementation, and enforcement of environmental laws and regulations. Environmental justice advocacy involves efforts to organize communities and collaborate with policymakers to prevent or remediate environmental injustice. The findings of three studies are presented and describe reliability, concurrent and discriminant validity, and internal structural validity analyses. A national sample of graduate students, practitioners, and faculty in the specialties of counseling psychology, counseling, and social work were surveyed (n = 43, n = 294, and n = 295, respectively). Study 1 addresses initial scale development procedures that

resulted in a 47-item measure. In Study 2, an exploratory factor analysis suggested a three-factor structure (Attitudes, Knowledge, and Skills) with excellent reliability and strong concurrent and discriminant validity. The results indicated that two of the subscales were correlated ($r = .16$ and $r = .16$, $p < .01$) with a measure of social desirability. In Study 3, a confirmatory factor analysis failed to replicate the three-factor model. However, four factors (Attitudes, Knowledge-General Environmental Justice, Knowledge-Psychological and Physical Health Environmental Justice, and Skills) explained a statistically significant amount of variance in question items. Suggestions for modification of the measure and recommendations for future research, training, and practice related to environmental justice advocacy for mental health professionals are provided.

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This dissertation is dedicated to indigenous people everywhere
who continue to struggle to retain their personal, political,
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CHAPTER I

INTRODUCTION

In the United States, people of color and individuals experiencing economic disadvantage are disproportionately exposed to environmental hazards (United Church of Christ [UCC], 1987, 2007; U.S. General Accounting Office [GAO], 1983). Environmental hazards include substances that adversely impact people's health and can be incorporated into the body through air, water, soil, and food consumption (Center for Disease Control [CDC], 2008). Ethnic minorities are typically exposed to higher rates of environmental hazards in the form of air pollution (Mohai & Bryant, 1992), as well as water and noise pollution (Evans & Kantrowitz, 2002), and minority communities are often targeted as locations for hazardous waste storage and disposal sites (Brown, 1995; Pinderhughes, 1996). Additionally, low-income individuals experience levels of exposure to toxins similar to people of color (GAO, 1983; Pellow & Brulle, 2005).

People of color and low-income individuals also face higher rates of exposure to environmental hazards because of institutional factors that impact the identification and cleanup of hazardous waste sites in their communities. Institutionalized racism reinforces unequal access to healthy living environments through racial segregation (Brulle & Pellow, 2006). Additionally, governmental policies often place the burden of proof regarding toxicity of environmental conditions onto the public, rather than onto

the polluters. This emphasis tends to increase the length of time between identification of an environmental hazard and the cleanup process (Bullard, 1994).

Environmental justice is a concept that addresses the differential exposure rates to environmental hazards for ethnic minority and economically disadvantaged communities. The U.S. Environmental Protection Agency (EPA; 2008a) defines environmental justice as "the fair treatment and involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (para. 1). Environmental justice is relevant to all settings in which a person lives and works.

Significant psychological, physical, and sociocultural outcomes are related to exposure to environmental hazards. Exposure to hazardous waste is associated with higher rates of depression (Bevc, Marshall, & Picou, 2005) and elevated stress levels (Baum & Fleming, 1993; Downey & Van Willigen, 2005). People exposed to environmental hazards also report higher rates of Posttraumatic Stress Disorder (PTSD) and Generalized Anxiety Disorder (GAD) when compared to people not exposed to the same levels of environmental hazards. Rates of PTSD have been found to be nearly two and a half times higher and rates for GAD are four times more likely for people exposed to environmental hazards than those who are not exposed to the same hazards (Palinkas, Petterson, Russell, & Downs, 1993).

Increased exposure to toxic chemicals has also been linked to negative physical health outcomes for humans. The EPA (1992) found a causal link between exposure to environmental contaminants and lead poisoning. Exposure to toxic chemicals is also

correlated with higher rates of cardiovascular disease, higher mortality rates (Brulle & Pellow, 2006), and respiratory problems such as asthma and emphysema (Evans & Kantrowitz, 2002). Exposure to environmental hazards can also have a major impact on cultural practices and traditions. Changes in the way in which a society relates to the earth, in terms of dietary and subsistence practices, and alterations in patterns of social relations are all associated with exposure to environmental hazards (Palinkas, Downs, Petterson, & Russell, 1993). Long-term health consequences may persist due to the fundamental way in which exposure to environmental hazards impacts all aspects of a community's life (Bevc et al., 2005).

Community mobilization and advocacy efforts have been recommended as successful approaches to address environmental injustice (Aronson, 1997; Brulle & Pellow, 2006). Advocacy strategies assume that a client's context is as important, if not more important, than individual factors in the change process. Advocacy efforts focus on modifying the client's environment through empowerment strategies and social action (Toporek, 2000). Individual and community empowerment strategies can lead to the development of individual skills, while also strengthening a community's ability to identify existing power dynamics in order to engage in effective community mobilization efforts (McWhirter, 1994). For example, social action strategies that include public policy intervention, research, and education have been found to be effective at relocating communities exposed to hazardous waste (Evans & Kantrowitz, 2002). The environmental justice movement, led primarily by people of color, is another example of a U.S. mobilization effort that has significantly improved the quality of life

for communities by reducing their exposure to environmental contaminants (Bullard, 2010).

Advocacy experts suggest that mental health professionals are central to change efforts (Toporek, 2000). A handful of mental health professionals have combined a commitment to advocacy with attention to environmental justice. Santiago-Rivera, Talka, and Tully (2006) encouraged counseling psychologists to advocate for clients and communities in terms of environmental racism. Other scholars have conducted community-based participatory research studies addressing the impacts of exposure to toxins for native communities in Alaska (Santiago-Rivera, Morse, Haase, McCaffrey, & Tarbell, 2007). Over a decade ago, by conducting two studies that examined how local environmental policies discriminate against low-income individuals, Howard (1993a, 1993b) encouraged practitioners to engage in scholarly activities addressing environmental concerns.

Although environmental advocacy efforts do exist in the mental health professions of counseling psychology, counseling, and social work, strategies to measure practitioner and trainee competence in this area are lacking. The absence of existing measures makes it difficult for clinicians to accurately assess their current attitudes, knowledge, and perceived skill levels associated with environmental justice advocacy. Therefore, the purpose of this study was to create and conduct initial validation procedures for the Environmental Justice Advocacy Scale (EJAS). The EJAS content focuses on mental health professionals' attitudes, knowledge, and perceived

skills regarding environmental inequality, health consequences associated with exposure to environmental hazards, and advocacy strategies that address environmental injustice.

In the following section, I review the environmental justice literature related to the counseling professions. I outline the major themes found in the literature and conclude the literature review with a description of the current studies, research questions, and hypotheses.

The Literature Review is followed by the Methods section, which outlines, in detail, the participants, procedures, measures, and analyses that were conducted in dissertation studies. The final two sections of this document include the Results and Discussion sections and conclude with a discussion regarding limitations and implications for future research, training, and practice.

CHAPTER II

LITERATURE REVIEW

The exposure to environmental hazards is not experienced equally across subpopulations in the United States. People of color and low income individuals experience higher rates of exposure to toxic substances when compared to Euro-American and moderately high-income individuals in the U.S. (GAO, 1983; Mohai & Saha, 2007; UCC, 2007; United Church of Christ Commission for Racial Justice, 1987). Exposure to environmental toxins has been found to be associated with negative physical, psychological, and sociocultural outcomes related to human health (Bevc et al., 2005; Brulle & Pellow, 2006). Because people of color and low-income individuals are exposed to higher rates of environmental risk, it is not surprising that they report higher rates of health problems associated with exposure to toxins (EPA, 1992). The disproportionate exposure to environmental contaminants occurs, in part, due to social injustices such as institutionalized racism, racial segregation, and legislative efforts that do not adequately protect people of color and low-income communities from the negative consequences linked with environmental risk (Bullard, 1994; Santiago-Rivera et al., 2006).

The mental health specialties of counseling psychology, counseling, and social work have adopted a social justice mission as a major part of their identity, and scholars

have encouraged researchers and practitioners to take an active role in addressing social injustice (Borgen, 2007; Constantine, Hage, Kindaichi, & Bryant, 2007; Ivey & Collins, 2003; Vera & Speight, 2003). Recently, scholars have urged mental health professionals to expand their understanding of social injustice to include advocacy efforts focused on environmental inequality in order to adequately address the needs of underserved populations (Gardner, 2003; Santiago-Rivera et al., 2006).

This review focuses on the evidence found in extant literature associated with environmental justice, the health consequences related to exposure to environmental hazards, and advocacy efforts suited to address environmental injustice. The purpose of this literature review is to discuss the concept of environmental justice as it relates to the mental health professions of counseling psychology, counseling, and social work. The review addresses the major themes found in the environmental justice literature. The main objective in discussing the literature is to highlight key content areas that provided the foundation for the development of the Environmental Justice Advocacy Scale (EJAS), a measure of environmental justice advocacy attitudes, knowledge, and perceived skills for mental health professionals. Included in the literature review is a description of the theoretical base for the measure, as well as a description of existing approaches focused on the assessment of mental health professional competency. Following the discussion of the literature, I describe the current study and conclude the literature review by identifying the goal of this study, my research questions, and hypotheses.

The available literature focused on environmental justice is extensive. Scholars addressing environmental justice issues are members of diverse fields, including psychology, geography, public health, law, sociology, economics, philosophy, and mathematics (Zilney, McGurrin, & Zahran, 2006). A recent literature search utilizing the term "environmental justice" produced 1,691 related articles and books. A sampling of environmental justice topics includes the history of the environmental justice movement (Bullard & Johnson, 2000; Faber & McCarthy, 2001; Pellow, Weinberg, & Schnaiberg, 2001); frameworks to address environmental injustice (Clayton, 2000); unequal exposure to environmental contaminants (Brown, 1995; Bryant & Mohai, 1992; Mohai & Saha, 2006); assessment of environmental risk (Rhodes, 2002); specific issues related to the environment, including access to clean water (Debbané & Keil, 2004) and illegal dumping of toxic substances (D. N. Pellow, 2004); the health impacts of exposure to toxic substances (Bevc et al., 2005; Edelstein, 2004; Harding & Greer, 1993); and community mobilization efforts focused on environmental justice (Minkler, Vasquez, Tajik, & Peterson, 2008; Santiago-Rivera, Morse, Hunt, & Lickers, 1998).

Due to the plethora of interdisciplinary literature available on the topic of environmental justice, this literature review discusses the seminal studies, literature reviews, and meta-analyses that represent existing research related to the mental health professions. Three major environmental justice content areas are relevant to the practice of counseling psychology, counseling, and social work: (a) environmental inequality, (b) the health consequences of exposure to environmental hazards, and (c) community

mobilization and advocacy strategies. The first section of this literature review addresses the existing literature focused on environmental inequality.

Environmental Inequality

Environmental inequality is central to the concept of environmental justice. Environmental inequality refers to situations in which specific social groups are disproportionately affected by environmental hazards (Brulle & Pellow, 2006). The Center for Disease Control (CDC; 2008) defines an environmental hazard as "an agent or factor in the environment that may adversely affect human health. People can be exposed to physical, chemical, or biological agents from various environmental sources through air, water, soil, and food" (para. 5). Two major themes were found in the literature focusing on environmental inequality. The two themes addressed environmental discrimination due to race and/or income level and unequal protection of environmental risk through regulatory practices.

Environmental Racism and Discrimination Due to Income Level

Environmental racism is considered one form of environmental inequality. The term environmental racism encompasses "any policy, practice, or directive that differentially affects or disadvantages (whether intended or unintended) individuals, groups, or communities based on race or color. Environmental racism combines with public policies and industry practices to provide benefits for Whites while shifting industry costs to people of color" (Bullard, 1990, p. 98). One example of environmental

racism includes the disproportionate siting of hazardous waste facilities in communities of color. An additional form of environmental inequality involves exposing low-income communities to hazardous environmental conditions. The majority of studies addressing environmental injustice have examined the relationship between siting of hazardous waste facilities and environmental discrimination based on race and income level.

The first study to tackle the issue of environmental racism was conducted by the U.S. General Accounting Office (GAO, 1983). The focus of the study was to examine whether a relationship existed between the location of hazardous waste landfills and the racial characteristics and income levels of the neighboring communities. The GAO study focused on four hazardous waste landfills. In three out of four cases the majority population residing near the landfills consisted of African Americans. Additionally, 26% of the population in these communities lived below the poverty line as identified by the U.S. government. The study also found that the majority of people living below the poverty line were African Americans.

A second study conducted by the United Church of Christ (UCC, 1987) followed the GAO study. The UCC study was the first national report documenting the relationship between hazardous waste facilities, uncontrolled toxic waste sites, and racial/ethnic communities in the U.S. In communities with one hazardous waste facility, the average minority population was twice the average percentage of the population of minorities in communities without a facility (24% vs. 12%). In communities with the largest number of commercial waste facilities, the average percentage of minority residents was more than three times that of communities without such facilities (38%

vs. 12%). The study concluded that race was the most significant variable associated with the location of a hazardous waste facility. Additionally, the study found that income level was also an important factor. In regards to uncontrolled toxic waste sites, three out of five African American and Latino Americans lived in communities with an uncontrolled site (15 million African Americans and 8 million Latino Americans). Fifty percent of Asian American and Native Americans lived near an uncontrolled waste site. The overall results indicated that over 50% of minority populations lived in a community with an uncontrolled toxic waste site (UCC, 1987).

Recently, a 20-year follow-up study was conducted by the UCC (2007) addressing correlations between toxic waste and race. This study indicated that "people of color are found to be more concentrated around hazardous waste facilities than previously shown." (p. 155). The results of this study showed that two thirds of the population living near multiple hazardous waste facilities were people of color. This study also noted that individuals with low-income levels were concentrated in neighborhoods with the largest number of waste facilities. Similar to their initial findings, race continued to be a stronger predictor than income and education for living near a hazardous waste facility.

Since the GAO (1983) and UCC (1987) studies were conducted, many literature reviews and one meta-analysis have been completed on the topic. Mohai and Bryant (1992) conducted the first review of literature examining environmental racism. In their review, they examined the 15 existing studies addressing the social distribution of pollution (primarily air pollution). A second goal of their analysis was to examine the

relative influence of income and race on pollution distribution. The authors documented that 12 out of the 14 studies examining income found the distribution of pollution inequitable by income. Additionally, 11 out of the 12 studies examining race found the distribution of pollution inequitable by race. Five out of the eight studies that examined both race and income found that race was a stronger predictor of the distribution of pollution. When exposure to combined concentrations of air pollutants was taken into consideration, race was determined to be the strongest factor. The authors reported that in all cases ethnic minorities were found to be more frequently exposed to pollution than the lowest income groups examined. Ultimately, the authors concluded that environmental discrimination occurred due to race and was not simply a function of poverty.

In a review of the literature, Pinderhughes (1996) examined existing research focused on the relationship between race, class, and the distribution of environmental hazards. After examining a different set of studies than the Mohai and Bryant (1992) literature review, the author asserted that the majority of evidence indicated that environmental quality was mediated by race and income level through discrimination and racial inequality. She found that certain ethnic groups were at greater risk for exposure to specific environmental hazards. For example, Native American communities were found to be targeted as sites for nuclear waste storage. In one of the studies reviewed (Angel, 1992), 15 out of the 18 existing nuclear waste storage facilities were placed on tribal lands. In a study focused on water quality (Newton & Ortega, 1991), the highest levels of groundwater contamination occurred in rural communities

consisting of higher frequencies of lower income and less educated Latino individuals than the national average. She theorized that environmental inequality occurs due to the targeting of ethnic minority communities for hazardous waste facilities through systemic factors such as institutionalized racism and poverty, and is exacerbated by the powerlessness resulting from these experiences.

In comprehensive analyses of the literature over a 15-year period, multiple authors have found similar results. Brown (1995) found overwhelming evidence that environmental hazards such as waste incinerators, hazardous waste sites, and nuclear storage facilities were inequitably distributed by race and income. Additionally, their analysis showed that people of color and low-income individuals were exposed to higher rates of air pollution, toxic releases of chemicals from industrial facilities, and unequal enforcement of environmental regulations and cleanup activities than their White, higher income counterparts.

In a different set of studies, Evans and Kantrowitz (2002) also found that significant relationships exist between the ethnic and socioeconomic characteristics of a community and levels of exposure to environmental risks. Their analysis indicated that people of color and individuals with low socioeconomic status experience higher rates of exposure to hazardous waste sites, air and water pollution, noise pollution, residential crowding, substandard housing, education, and unhealthy work environments than White, higher income populations.

Most recently, Ringquist (2005) conducted a meta-analysis examining 49 studies focusing on the relationship between the distribution of environmental risk and current

demographic conditions. They found the same patterns as previous literature reviews and determined that exposure to environmental risk occurs inequitably for people of color and low-income individuals.

More recent studies have re-examined previous data and questioned the research methodologies employed. Mohai and Saha (2006) asserted that the way in which community proximity to waste transfer, storage, and disposal facilities (TSDFs) was measured has been flawed in many previous studies. As a result, the authors re-analyzed data and found that disparities for low-income individuals and ethnic minority groups were even greater than previous studies reported, especially in regards to race. The authors interpreted these findings to suggest that factors uniquely associated with race (e.g., racial targeting at the time of siting waste facilities, housing segregation after siting, and institutional discrimination) play a significant role in locating TSDF sites.

While numerous studies were developed to identify whether race or class is a stronger predictor of environmental risk, scholars have suggested that neither form of inequality is acceptable (Pellow & Brulle, 2005; Pinderhughes, 1996). Instead, researchers have urged scholars to address concerns that eliminate environmental inequality in all of its forms. In summary, the preponderance of evidence suggests that environmental risks are disproportionately experienced by people of color and low-income individuals through racial and economic discrimination. In conducting this literature review, I was unable to locate any research concluding that race or income levels were unrelated to higher rates of exposure to environmental hazards.

Unequal Protection of Environmental Risk Through Institutional Practices

A second way in which environmental inequality persists is through institutional practices that privilege Whites over people of color. Three institutional factors that influence increased exposure to environmental risk include (a) the targeting of communities of color through the path of least resistance, (b) social dynamics, and (c) institutional factors that impact the timing and extent of environmental cleanup activities.

Path of Least Resistance

Pastor, Sadd, and Hipp (2001) have conducted research in the Los Angeles area addressing the deliberate siting of waste facilities. Their research has shown that over a 30-year period the relationship between polluting facilities and minority communities is a consequence of the deliberate siting of facilities in existing minority communities, rather than due to geographic shifts in the population after the placement of the facility in the community. Communities sited for waste facilities are often poor, less informed, and less politically organized (Pinderhughes, 1996). Selecting communities based on these criteria has been referred to as the "path of least resistance" (Bullard & Wright, 1986b, p. 78; Schelly & Stretesky, 2009, p. 370). Taking the path of least resistance often results in African American communities hosting a larger proportion of polluting industries, while the benefits of the use of the amenities related to pollution (e.g., consumer products) are experienced in White communities (Bullard & Wright, 1986a;

Saha & Mohai, 2005). The lack of community organization and political resources makes it difficult for some communities to resist public policy decisions that impact the siting of waste facilities (UCC, 2007).

The lack of community mobilization and resistance to the siting of hazardous waste facilities is due to multiple factors. Two factors include a community's access to accurate information through the political process (GAO, 1983) and a community's need for the economic opportunities supplied by a polluting industry. Bullard (1992) asserts that the economic needs of a community that make it vulnerable to hosting hazardous waste facilities should be considered "job blackmail" (p. 82). Job blackmail is a form of economic discrimination that requires communities of color to choose *either* a clean environment *or* economic opportunities that may be hazardous to their community's health. Although these practices may not be intentional, through formal (e.g., regulatory) and informal structural processes (e.g., application of sanctions), the outcomes tend to discriminate against people of color and low-income communities (Gelobter, 1992). Additionally, land is often less expensive in communities of color than it is in White communities. The ability to access affordable land, which often coincides with reduced zoning regulations and residential segregation patterns, makes communities of color desirable targets for industries interested in reducing operational costs (Pinderhughes, 1996).

Social Dynamics

A second factor that contributes to unequal protection from environmental risk for communities of color and low-income individuals involves the social institutions in U.S. society. Brulle and Pellow (2006) have asserted that the creation and maintenance of environmental inequality are essentially related to the social dynamics of society. The authors point out that "exploitation of the environment and exploitation of human populations are linked" (p. 108). Two ways in which exploitation occurs involve the current economic system and institutionalized racism. Brulle and Pellow discuss the nature of capitalism and how it reinforces a pattern of increased production and consumption. This involves both the creation of wealth and the creation of externalities (e.g., pollution). As a result, "the social and economic benefits . . . are unevenly distributed in favor of business and affluent communities, whereas the environmental risks . . . are disproportionately concentrated among specific ethnic groups." (Brulle & Pellow, 2006, p. 108).

In addition to the market economy, racial segregation also plays a role. Discrimination in regards to education, employment, and access to residence in affluent communities directs people of color to neighborhoods with increased environmental risk. Brulle and Pellow (2006) cite numerous examples of discrimination in terms of the practices of real estate agents, lending institutions, and the propensity for White people to live in suburban neighborhoods removed from urban centers. The isolation of living

in urban environments also makes communities more vulnerable to being targeted as recipients of hazardous waste facilities.

Environmental Cleanup and Regulation

The third factor that contributes to unequal protection for environmental risk involves policies that result in differential response rates from governmental agencies regarding cleanup efforts. Differential response rates disproportionately affect people of color and low-income individuals since they live in closer proximity to hazardous waste sites than do their White and affluent counterparts. Bullard (1994) points out that the central ways in which unequal cleanup occur involve the tendency for governmental organizations to (a) place the burden of proof regarding toxic conditions on victims rather than on industry, (b) legitimize human exposure to harmful substances, (c) promote risky technologies, (d) exploit economically and politically disenfranchised communities, (e) create an industry around risk assessment, (f) delay cleanup efforts, and (g) fail to develop pollution-prevention policies (Bullard, 1994).

All of these conditions can be seen in the human-made disaster caused by the natural occurrence of Hurricane Katrina. First, over the years the natural buffer of wetlands surrounding New Orleans was eliminated due to economic development. The developers profited financially, but few benefits remained in the New Orleans community comprised primarily of people of color and low-income individuals (UCC, 2007). Second, the infrastructure (e.g., levees, flood walls) had been severely neglected due to government spending directed, in part, toward flood-control projects in affluent

neighborhoods. After the hurricane descended, massive amounts of toxic waste contaminated the water systems, homes, businesses, and community. The hurricane exposed community members to high levels of lead, sewage-related bacteria, the leaching of toxic chemicals from a 95-acre Superfund site, and oil and toxic chemical spills that contaminated the soil and water ("The Mother of All Toxic Cleanups," 2008). In this example, the people least able to protect themselves were community members with the fewest resources, namely people of color, individuals with disabilities, the elderly, and low-income individuals (UCC, 2007). The UCC reported that the waste generated 10 months after the storm could have filled five football fields piled two miles high. Since the hurricane, landfills were opened to accommodate the waste material in predominantly African American neighborhoods. Although community members were told that the landfills are safe, long-term studies still need to be conducted. Many of these issues could have been avoided had local, state, and federal governmental agencies prioritized the prevention of pollution, along with the equitable distribution of funds for infrastructure, across White and ethnic minority communities.

The procedure for cleanup efforts is a long and complex process. The process typically involves ranking a hazardous waste site using the Hazard Ranking System. Once a site has been ranked, it is then listed on the National Priorities List (NPL). The NPL guides the Environmental Protection Agency (EPA) in determining which sites need further investigation, identifying necessary remediation, notifying the public about sites, and notifying responsible parties (EPA, 2008b). After being listed on the NPL, a Record of Decision (ROD) is created that identifies the cleanup actions that will be

implemented. Superfund is the federal program responsible for cleaning up national uncontrolled hazardous waste sites.

In 1993, Lavelle and Coyle (as cited in Brown, 1995) examined 1,177 out of 1,206 Superfund sites. They found that the average time it took to place a hazardous waste site on the NPL after discovery was between 5-6 years. They also found that abandoned hazardous waste sites in minority communities took 20% longer to be placed on the NPL than sites in White communities. They determined that White communities experience quicker and more comprehensive cleanup efforts than communities consisting of people of color. Additionally, they found that industrial fines and penalties are higher in White communities. Average penalties in White communities were found to be $335,566, whereas the average penalty in communities comprised of ethnic minorities was $55, 318.

Zimmerman (1993) found that the percentage of African Americans and Latino Americans in communities with NPL sites was greater than the nationwide average. This study also found that communities comprised of ethnic minorities had fewer RODs in place than other communities. However, the author asserted that the disproportionate cleanup may be more reflective of how NPLs are designated rather than intentional or unintentional discrimination practices due to the way in which cleanup efforts are prioritized.

Summary

In this section, I presented the research addressing environmental inequality, the first major theme found in the environmental justice literature. In general, the literature supports the assertion that people of color and individuals with lower income levels experience higher rates of exposure to environmental hazards. This occurs due to a variety of factors, including unequal protection from environmental risk resulting from the targeting of communities of color and low-income communities by industry, through social dynamics such as the market economy and institutionalized racism, and through differential enforcement of practices related to environmental hazard cleanup.

In the next section, I discuss the second major theme found in the literature; the health impacts of exposure to environmental hazards. I discuss the physical, psychological, and social/cultural consequences of exposure to environmental hazards. Additionally, I discuss literature that addresses health disparities related to exposure to toxic substances for specific populations.

Health Consequences of Exposure to Environmental Hazards

The purpose of this section of the literature review is to discuss research findings focused on the health consequences associated with exposure to environmental hazards. I discuss the physical, psychological, and sociocultural ramifications of exposure to environmental hazards due to the relevance of these topics for the mental health professions. I discuss the literature addressing the role of psychological stress on well-

being, especially the role of perceived health impacts of hazardous waste, and how they contribute to stress-induced illness. I conclude with a brief discussion about the long-term nature of the health problems associated with exposure to environmental hazards.

Physical and Psychological Outcomes

There has been a substantial amount of research addressing the physical health problems associated with exposure to environmental hazards. There is less literature available focusing on the psychological ramifications of exposure to environmental hazards. The major psychological studies that have been conducted often combine physical and psychological factors in their studies.

Although the EPA (1992) claims that racial minority and low-income populations experience higher than average exposure rates to air pollutants, hazardous waste facilities, contaminated fish and agricultural pesticides, while also experiencing differences in disease and mortality rates, other researchers have highlighted the difficulty in establishing a causal connection between these phenomena (Brown, 1995; Brulle & Pellow, 2006; U.S. Institute of Medicine, 1999). Some of the challenges researchers face in drawing causal connections between exposure rates and health consequences include (a) a lack of existing knowledge about the toxicity of most chemicals, (b) the fact that people are typically exposed to toxic substances through multiple pathways, (c) the difficulty in calculating exposure levels, (d) long latency periods between exposure and illness, and (e) a lack of access to high-quality health care for affected populations (Brown, 1995; Brulle & Pellow, 2006).

With the previous limitations in mind, research indicates that exposure to environmental hazards is associated with increased rates of cardiovascular disease, and higher adult and infant mortality rates (Brulle & Pellow, 2006). Additionally, increased air pollution due to industrial waste is associated with respiratory problems such as bronchitis, asthma, and emphysema (Evans & Kantrowitz, 2002). Lead poisoning is also an area of concern and is often related to substandard housing. African Americans and low-income individuals have been shown to have a higher percentage of children with elevated blood lead content, which has been found to cause cognitive deficits (EPA, 1992).

The relationship between cancer rates, hazardous waste, and contaminated drinking water has also been studied. Griffith, Duncan, Riggan, and Pellom (1989) examined the health data from 593 hazardous waste sites that contaminated community drinking water. They found evidence of higher rates of mortality and lung, bladder, esophagus, and stomach cancer rates for men, as well as increased rates of lung, breast, bladder, and stomach cancers for women when compared to the national average for these populations.

Bevc et al. (2005) analyzed exposure levels to emissions from two municipal waste incinerators in the Wingate community near Fort Lauderdale, Florida. They selected Fort Lauderdale because it was identified as one of 50 metropolitan areas with unregulated toxic waste sites (UCC, 1987). Additionally, the Wingate community consisted largely of African American residents (97%). This study measured soil and water quality of property near the waste incinerators, taking into account the number of

years of residence of community members. The two incinerators focused on in the Bevc et al. (2005) study burned up to 560 tons of waste per day, emitting 300 tons of particulate matter annually. During the collection of toxic samples, elevated levels of benzene, dioxin, mercury, and arsenic were found to have contaminated the soil and water on site and in the surrounding neighborhoods. The EPA remediation involved placing a synthetic cap over the contaminated areas that residents called Cancer Mountain.

Bevc et al. (2005) surveyed 223 residents regarding their stress and depression levels, as well as diagnosed and undiagnosed physical health problems. Residents were also asked about perceived exposure levels and perceived level of health risk. On average, participants reported two diagnosed and nine undiagnosed symptoms. The most frequently diagnosed symptoms included irregular heartbeat (35.9%), bronchitis (29.6%), anemia (26%), diabetes (25.6%), asthma (24.2%), skin conditions (18.4%), and cancer (12.6%). The most frequently undiagnosed symptoms included headache (68.6%), muscle pains (63.7%), blurred vision (59.6%), soreness of joints (58.7%), and numbness in fingers and toes (55.6%). Older participants, people who drank well water, and those who consumed fish from on-site lakes, reported higher rates of depression and experienced more diagnosed symptoms than younger adults, people who drank water from municipal treatment facilities, and those who did not consume fish from the nearby lakes. Fish consumption was found to be the strongest predictor of physical health, with higher consumption associated with poorer health. Perceived exposure to environmental hazards played an important role and was associated with higher levels of undiagnosed

symptoms, while also predicting the likelihood that residents avoided thinking about the waste incinerator and the contamination of the soil and groundwater.

Psychological Stress

Psychological stress has been cited as a major consequence of real and perceived exposure to environmental hazards (Baum & Fleming, 1993; Downey & Van Willigen, 2005; Edelstein, 2004; Lima, 2004; Palinkas, Russell, Downs, & Petterson, 1992; Santiago-Rivera et al., 2007; Tucker, 1998). Individuals and communities affected by toxic exposure experience stress for a variety of reasons. Individual and community lifestyles are often altered after exposure to toxins. Frequently, community members are required to change major aspects of their lives such as patterns in their home environment, the location of their residence, and perceptions about their health status (Edelstein, 2004). Secondly, toxic exposure is usually unexpected and involuntary, giving people a sense that they are not in control of their lives (Lima, 2004). Third, feelings of uncertainty are often associated with toxic exposure due to the lack of information available regarding the circumstances, pervasiveness, and health impacts of exposure (Santiago-Rivera et al., 2007). Finally, communities exposed to environmental contaminants are often stigmatized. Communities can be labeled as "contaminated," thus impacting the members' quality of life, property values, and sense of community cohesiveness (Brown, 1995; Edelstein, 2004; Tucker, 1998).

Santiago-Rivera et al. (2007) conducted the first study to examine Polychlorinated Biphenyl (PCB) exposure in a Native American community. PCBs are

human-made chemicals that were utilized as coolants and lubricants in industrial processes and the manufacture of electrical equipment (Agency for Toxic Substances and Disease Registry, 2001). PCBs were banned in 1977. In addition to physical health problems such as gastrointestinal distress, skin conditions, and infections, PCB exposure has also been associated with psychological and neurological problems, including impairment in cognitive functioning (e.g., decreased verbal learning), visual disturbances, and depression in adults (Fitzgerald et al., 2008).

In their community-based project, Santiago-Rivera et al. (2007) interviewed a random sample of community members from the Mohawk Nation in Akwesasne, New York. They examined the social and psychological impact of exposure to multiple environmental contaminants due to industrial pollution of the St. Lawrence River. At the site, industrial waste was disposed of in such a manner that caused air, water, and soil contamination. The Akwesasne community experienced a disproportionate amount of negative impacts when compared to neighboring communities, because they were the first community downstream from the industrial site (Akwesasne Task Force on the Environment, 2007). Quality-of-life indicators (e.g., family and community relations, personal and work life satisfaction), hormone levels, neurotransmitter functioning determined via urinalyses, and depressive symptomatology were assessed. Results indicated that awareness of exposure to PCBs, rather than causal effects due to actual exposure to PCBs, was what created significant stress reactions in the community. Results of this study suggest that stress exacerbates the effects of physical exposure to hazardous substances.

Edelstein (2004) conducted a study focused on the social and psychological impacts of groundwater contamination from a municipal landfill in the community of Legler, New Jersey. Between 1971-1980, a 20-acre landfill was utilized for the disposal of liquid and solid human waste and the illegal disposal of chemical and industrial waste. Over 50,000 gallons of human waste were disposed of in the landfill. In 1978, the New Jersey Department of Environmental Protection studied the community and found that the landfill had contaminated the groundwater. The contamination greatly impacted the residents' quality of life by requiring them to utilize delivered water instead of tap water and invest financially in the municipal water system, and by increasing the uncertainty associated with long-term problems due to consumption of the contaminated groundwater prior to its discovery. Edelstein interviewed a representative sample of 25 families and found that they experienced increased stress levels due to the contamination. The contamination required families to reframe their beliefs regarding the safety and meaning of home, their perception of a normal life, their trust in others, and the financial burden of loss of property values for homeowners due to the stigma of being a "contaminated" community. Additionally, residents reported increased rates of anger, depression, family problems, interpersonal aggression, and chronic stress. Residents also reported experiencing stressors due to unwanted odors, increased noise, traffic, and litter, along with the negative visual impacts of the landfill.

In a study examining psychological well-being among 1, 210 residents in 18 Illinois counties, Downey and Van Willigen (2005) investigated the impact of living near industrial activity on residents' mental health. They found that regardless of actual

toxic emission levels, residents were negatively affected by their perception of powerlessness and a feeling of social disorder due to the nearby industrial activity. The study found that industrial activity was viewed as a source of chronic stress for residents and, coupled with other stressors (e.g., racism, divorce, death, lack of access to resources), was associated with reduced levels of psychological well-being, regardless of socioeconomic background. Using the results of their study as a basis, Downey and Van Willigen suggested that living near industrial activity should be considered a neighborhood-level chronic stressor similar to poverty.

In the Downey and Van Willigen (2005) study, the majority of participants (54%) believed that pollution due to industrial activity was extremely dangerous to themselves and their families. Additionally, 90% of the participants believed that the government was not regulating industry in a manner that would protect their community. Both of these beliefs, along with feelings of powerlessness and a perception of neighborhood disorder due to the industrial activities, contributed to residents' chronic stress levels. Individuals in the Downey and Van Willigen study also reported higher levels of depressive symptomatology and less perceived control over their lives than did control participants. Ultimately, the authors concluded that nearby industrial activity resulted in feelings of powerless mediated by perceptions of social disorder. They also found that higher amounts of waste generated from industrial activities were more strongly associated with symptoms of depression than neighborhood stability or poverty rates.

In addition to causing psychological discomfort, research has shown that stress can reduce the body's resistance to negative stimuli, making a person more susceptible to physical illness (Gee & Payne-Sturges, 2003). These findings suggest that mental health professionals need to be attuned to the stress levels of clients and communities associated with real and perceived events. Being exposed to environmental contaminants, regardless of the level of exposure, significantly impacts the quality of life and individual functioning within a community.

Sociocultural Consequences of Exposure to Environmental Hazards

In addition to physical and psychological consequences, exposure to environmental hazards also impacts the sociocultural domain of human functioning. In a series of studies, Palinkas and colleagues examined the psychological and sociocultural impact of the Exxon Valdez oil spill on native communities in Alaska. In 1989, the Exxon Valdez tanker ran aground in the Prince William Sound. Eleven million gallons of oil spilled into the natural environment. The environmental disaster had a major impact on the social, cultural, and psychological health of the communities through cleanup efforts, mental health service utilization, and the physical health problems of community members. Additionally, the event impacted the traditional living practices of the Alaskan Natives because it required them to change the way in which they interacted with the contaminated environment.

The psychological impact of the Exxon Valdez oil spill on indigenous communities was extensive. Palinkas, Downs, et al. (1993) found native villages were

most impacted by the spill and reported increased rates of Generalized Anxiety Disorder (GAD), Posttraumatic Stress Disorder (PTSD), and depression after the spill. Community members experiencing the highest exposure rates to the spill were almost four times as likely to experience GAD symptoms, two and a half times as likely to experience PTSD, and almost two times as likely to experience elevated symptoms of depression (Palinkas, Petterson, et al., 1993) after the spill. Community members also reported increases in substance use and domestic violence. Regardless of the level of actual exposure to environmental contaminants related to the spill, community members perceived their health status to have declined at higher rates compared to those of control group members unexposed to the spill (Palinkas, Downs, et al., 1993). Not surprisingly, Palinkas, Petterson, et al. (1993) found that mental health care utilization increased after the spill. Even so, the researchers determined that most community members exhibiting depressive symptomatology did not receive treatment due to the remote nature of the villages and because seeking mental health services was incongruent with their cultural beliefs.

Palinkas, Downs, et al. (1993) also found that community conflict arose due to an unequal distribution of cleanup jobs and financial compensation after the spill. Prior to the event, the region was home to multiple cultural groups who identified as indigenous people. The communities' primary social relations were based on a subsistence economy. After the spill, community members' relationships with the natural world, and each other, were significantly altered. The introduction of high-wage jobs into the communities created social discord by creating an imbalance of economic

and political power between community members and contributed to socioeconomic stratification (Palinkas, Petterson, et al., 1993).

The cleanup efforts also changed the nature of communication within the community. After the oil spill, cleanup efforts became the most common topic of conversation and dominated daily life. The event also changed the way in which community members participated in traditional cultural activities. Because of the contamination of the water and game in the community, residents no longer had access to the fisheries and wildlife that had been a major part of their cultural traditions. Community members claimed that all aspects of their life were impacted, especially because the way in which they had previously interacted with the natural systems in the region had been severely altered by the spill. Additionally, because so much time was taken up by the cleanup efforts, less time was spent participating in religious and community activities.

Santiago-Rivera et al. (2007) found similar results in their study of the Mohawk community in regards to PCB exposure. They found that community awareness that the land had been polluted by PCBs impacted the community's ability to maintain their spiritual connection with the earth. Similar to the Alaskan Native community in the study conducted by Palinkas, Downs, et al. (1993), fishing was also a major part of the local economy and social network for the Mohawk community. The community's disconnection with the earth due to its contamination created sociocultural and psychological distress for the community members.

In a recent study, Shriver and Webb (2009) examined environmental exposure and perceptions of environmental health of a Native American community located near the Continental Carbon Company in Ponca City, Oklahoma. The Continental Carbon facility manufactures carbon black, a powder used as a reinforcing agent in rubber products. Black soot from the manufacturing plant consistently covers the residents' homes, yards, cars, and outdoor possessions. In addition to the physical health ailments associated with the substance (e.g., asthma and other breathing disorders), the community argues that the pollution has compromised their community by imposing social isolation. Community members reported feeling as though they are forced to stay indoors due to the perceived health concerns. Additionally, the pervasiveness of carbon black in the neighborhood has strained relationships with friends and family who live outside of the contaminated area. The community members surveyed in this study report that their friends and family are reluctant to visit and especially loath to bring small children into their community. Although community relocation has been recommended as a solution, the strong connection the native community feels toward their homes and the land suggests that relocation is not a culturally viable option.

Preservation of unique cultural worldviews is an important component of professional competence for mental health professionals (Sue, Arredondo, & McDavis, 1992). As such, these findings suggest that the sociocultural impact of activities that create environmental injustice is an important area in need of attention for mental health professionals.

Long-Term Consequences

Physical, psychological, and sociocultural problems can persist long after an environmental hazard has been resolved—in part, because the physical properties of chemicals related to environmental hazards can remain in the environment for decades, or even longer (Agency for Toxic Substances and Disease Registry, 2001). Studies evaluating community members near the Three Mile Island incident documented chronic stress, anxiety, and depressive symptomatology related to the incident up to six years after the occurrence (Baum & Fleming, 1993). Community members in the Wingate community studied by Bevc et al. (2005) displayed mental and physical health symptoms 25 years after the waste incinerators were closed.

Summary

In this section, I presented the research addressing the health impacts of exposure to environmental hazards. In general, the literature supports the assertion that exposure to environmental hazards is linked to negative physical, psychological, and sociocultural consequences. The negative psychological consequences occur, in part, due to stress related to the real and perceived exposure to an environmental hazard. The negative sociocultural consequences occur primarily due to changes in lifestyle, the impact on social relations, and a shift in worldview for the affected populations. It is also important to note that the health impacts are not necessarily eliminated because the environmental risk has been addressed, and that long-term health problems may persist.

In the next section, I discuss the third major content area of environmental justice literature: community mobilization and advocacy strategies related to environmental injustice. It has been suggested that grassroots efforts and advocacy-oriented strategies are highly successful in addressing environmental injustice (Aronson, 1997). Advocacy is also a dominant theme in the counseling professions and a significant aspect of counselor identity (Lee, 1998; Toporek, 2000; Vera & Speight, 2007). The commitment to advocacy on the part of mental health professionals places them in an opportune position to apply their strengths to intervene in circumstances of environmental injustice. Therefore, in the next section I discuss the literature that addresses the environmental justice movement, individual and community empowerment, and social action as they relate to environmental injustice. Additionally, I explore the theoretical approach that can best address environmental injustice from a mental health perspective.

Community Mobilization and Advocacy

The purpose of this section is to describe the third, and final, theme in the environmental justice literature relevant to mental health professionals. The theme addresses community mobilization and advocacy strategies. In this section, I briefly describe the history of the environmental justice movement, as well as the role that advocacy plays in addressing environmental injustice. I discuss the major components of advocacy, which include empowerment and social action.

The Environmental Justice Movement

The environmental justice movement is a coalition of community-based, grassroots organizations whose primary goal is to create social change regarding multiple environmental justice issues (Aronson, 1997). The landmark event that spawned the environmental justice movement occurred in Warren County, North Carolina, in 1982. This community, comprised primarily of African Americans, was targeted as the storage site for 32,000 cubic yards of PCB-contaminated soil (Bullard, 1990). The waste had been illegally dumped in 14 counties in North Carolina by a trucking company because the company could not afford to dispose of the toxic materials in accordance with EPA regulations. As Bullard reports, the site selection was viewed as a political, rather than scientific, decision since the community's entire water source was 5-10 feet below the surface. The shallowness of the water source made the community especially vulnerable to leaching of toxic chemicals into the groundwater. Community leaders and residents organized to stop the development of this waste site. The organizational efforts resulted in protests, more than 500 arrests, and national attention focusing on environmental justice issues (Bullard & Johnson, 2000). Although the organizing efforts did not stop the development of the landfill, it did create the impetus for the environmental justice movement and the seminal studies mentioned earlier (GAO, 1983; UCC, 1987).

The Warren County event also had a significant impact on the creation of the First National People of Color Environmental Leadership Summit held in Washington,

D.C., in 1991. It has been suggested that this event was the single most important event in the movement's history (Bullard & Johnson, 2000). The primary purpose of the summit was to unite people of color in the U.S. to resist continued oppression (Bryant & Mohai, 1992). Based on the summit activities, 17 principles of Environmental Justice were identified. The principles address the need for people of color to build a national movement to reestablish their spiritual interdependence with the earth, to celebrate each of their cultures, languages and beliefs about the natural world, to create economic alternatives that ensure economic and political sovereignty, and to ensure environmental justice for all (Environmental Justice Resource Center, 1991).

The second Environmental Leadership Summit occurred in 2002 and participants urged community members to expand the movement beyond the U.S. to encompass international issues such as global environmental racism, international poverty and pollution, toxic production of chemicals, housing and transportation discrimination, and economic globalization. The most frequently discussed topics related to international environmental justice focus on injustice associated with global climate change. Recently, authors have asserted that hazards related to climate change (e.g., increased greenhouse gases resulting in higher temperatures, rising sea levels, increased malaria risk) tend to worsen existing inequalities and create unequal impacts on communities of color, indigenous people, the poor, and on developing countries (Mohai, Pellow, & Roberts, 2009). A new climate justice movement is emerging in relation to these issues with the primary goal of ensuring that the impacts of climate change are distributed equally across populations and nations and integrated into social

and public policy at national and international levels. Mohai et al. (2009) describe the movement as one that focuses on who is responsible for creating the problems associated with climate change, which groups suffer the most, and who has the necessary resources to cope with the increasing impacts of climate change.

Recently, the American Psychological Association (APA) developed a task force examining the relationship between psychology and global climate change. In their report, the APA Task Force on the Interface Between Psychology and Global Climate Change (2009) emphasized the importance of psychological intervention directed at climate change issues. Among the many recommendations made by the task force, they encourage psychologists to become involved in understanding and responding to human and psychological dimensions of global climate change. Additionally, they urge psychologists be become more aware of the psychosocial impacts of climate change (e.g., impact on intrapersonal and intergroup behavior, the impact of competition for increasingly scarce environmental resources). Finally, they advocate for psychologists to be mindful of social disparities and how justice issues intersect with climate change.

It has been suggested that the reason the environmental justice movement has been effective is due to strategies focused on mobilizing communities based on their racial identity. Mobilizing communities around salient aspects of their identity has been found to attract resources from outside of the community (e.g., financial and human resources) and has connected environmental issues with civil rights (Aronson, 1997). Additionally, blending grassroots efforts with legal and economic interventions has been found to be an effective approach in addressing environmental injustice (Hofrichter,

2002; Mohai et al., 2009). Brulle and Pellow (2006) and Lowry (1998) have asserted that grassroots organizing at the local level is the most effective way to address environmental injustice because concerns specific to each community can be addressed where they occur.

Activists and scholars agree that community mobilization and advocacy is an instrumental component in confronting environmental injustice (Bullard & Johnson, 2000; Santiago-Rivera et al., 2006). Santiago-Rivera et al. (2006) assert that "despite the growing awareness of the detrimental effects of environmental contamination, as well as the mobilization of various movements to address this situation, mental health professionals have not taken an active role in the process" (p. 190). They have encouraged counseling psychologists to expand their roles to include individual and family interventions addressing concerns related to exposure to environmental hazards, as well as advocating for communities by taking on leadership roles.

Major Components of Advocacy

Toporek and Liu (2001) define advocacy as the "action a mental health professional, counselor, or psychologist takes in assisting clients and client groups to achieve therapy goals through participating in clients' environments" (p. 387). Advocacy activities assume that the client's context must change and that the mental health professional is an essential part of the change process (Toporek, 2000). Advocacy involves interventions that are conducted both with, and on behalf of, clients (Toporek, 2000) and involve interventions that increase a client's personal power and foster

environmental change (Lewis, Lewis, Daniels, & D'Andrea, 1998). Lewis and Bradley (2000) differentiate between client advocacy and political advocacy. Client advocacy involves actions that directly impact the client's environment so that the environment is more responsive to the client's needs. Political advocacy takes a wider view and involves confronting political, economic, and social institutions, thus impacting entire communities through systemic change.

Advocacy has been a major topic in the counseling and social work literature, and scholars suggest the need to adopt an advocacy framework (Toporek, 2000); address factors that predict social justice advocates (Nilsson & Schmidt, 2005); advocate for African American clients (Sanders, 2000) and indigenous methods of healing (Sue, 2000); address the intersections between race, class, and gender (Toporek & Liu, 2001); examine the role of professional identity and social justice advocacy (Van Voorhis & Hostetter, 2006); and emphasize the importance of training social justice advocates (Vera & Speight, 2007).

The multicultural and social justice literature has also discussed the need to advocate against the systemic nature of socioeconomic disadvantage (Armstrong, 2007). Additionally, developing advocacy through multicultural competence (Arredondo, 1999), developing systemic interventions (Kakkad, 2005), and facilitating the development of counselors as social change agents (Lee, 1998; Mays, 2000; Vera & Speight, 2003) have all been topics of interest.

Types of Advocacy

Lewis and Lewis (1977, as cited in Toporek & Liu, 2001) describe three types of advocacy that are relevant for mental health professionals. The first type of advocacy can be described as "here-and-now advocacy." This type of advocacy involves responding to situations in the present. In terms of the environmental inequality literature, this form of advocacy might involve working with individual clients and/or communities as they attempt to cope with the stress of being exposed to an environmental hazard. The second type of advocacy can be described as "preventive advocacy." This form of advocacy involves interventions designed to prevent injustice. This might include lobbying legislators to create tougher environmental standards that are enforced equally across racial and socioeconomic groups. The third type of advocacy can be described as citizen advocacy. This form of advocacy involves encouraging others to organize around specific issues. In terms of environmental justice, this might involve facilitating groups that organize community members to resist the siting of a hazardous waste facility in their neighborhood.

Ethical Obligation

Toporek and Liu (2001) assert that it is an ethical obligation of counselors and other mental health professionals to engage in advocacy work. These scholars present six advocacy guidelines for mental health professionals, which include the need for counselors to (a) understand the societal context within which their client is embedded;

(b) identify and confront oppression in all of its forms; (c) work collaboratively with clients to define treatment goals and plans; (d) increase clients' skills and efficacy, with a focus on removing external barriers; (e) create institutional policies that support clients and facilitate coalitions; and (f) consult with other professionals and become involved in the community where one practices.

Advocacy Skills and Strategies

Kiselica and Robinson (2001) suggest that counselors need to exhibit six specific skills in order to engage in advocacy counseling. First, the counselor must be committed to the alleviation of human suffering. Second, a counselor must have developed strong verbal and nonverbal communication skills that are displayed in culturally appropriate ways. Third, counselors need to be able to engage in a systemic analysis that takes into account contextual factors impacting the client. Fourth, counselors must be skilled in both individual and organizational interventions so that they can mediate, negotiate, and influence public policymakers. Fifth, counselors must have sophisticated knowledge about the media and how to utilize it to create systemic change. Finally, counselors must have the ability to evaluate current research through strong analytical skills.

Individual Empowerment

Counseling scholars have suggested that advocacy activities occur on a continuum (Toporek, 2000). One end of the continuum involves empowerment and the

other end leads to social action. Using a literature review of the human service professions as a basis, McWhirter (1994) described counseling for empowerment as

> the process by which people, organizations, or groups who are powerless (a) become aware of the power dynamics at work in their life context, (b) develop the skills and capacity for gaining some reasonable control over their lives, (c) which they exercise, d) without infringing upon the rights of others, and (e) which coincides with actively supporting the empowerment of others in their community. (p. 12)

For genuine empowerment to occur, McWhirter (1997) recommends that it involve collaboration with the client, take into account a client's context, emphasize critical self-examination and power analysis, increase client and counselor competence, and contribute to the community. In order to accomplish these goals, empowerment needs to occur at two levels: the individual and community level (Holcomb-McCoy & Mitchell, 2007).

Empowerment in terms of counseling at the individual level assumes that through the process of counseling the client gains more control over his/her life in multiple life contexts (e.g., personal, social, environmental). Additionally, it supports a more equalized sense of power in the therapeutic relationship. It has also been suggested that empowerment involves increased participation on the part of the client in his/her community (McWhirter, 1991, 1994).

Fundamentally, empowerment assumes that counselors will be aware that the counseling process itself can be oppressive and may reinforce power differentials. Therefore, an essential practice of empowerment involves critical self-examination on the part of the counselor. It has been suggested that counselors need to be aware of their

own privilege, how they benefit from societal inequality, and be willing to acquiesce aspects of their power (McWhirter, 1994). In terms of environmental justice, this critical self-examination might result in an increased awareness of how zoning regulations create segregated neighborhoods, thus benefiting Euro-American counselors, while penalizing people of color.

Skill development is the second major component of an empowerment approach. Working with the client to develop self-esteem, addressing cognitive beliefs that might not be in service of the client, and exploring a client's expectations about his/her ability to accomplish specific goals are all aspects of an empowerment approach (McWhirter, 1994). At an individual level, these skills are essential for clients in communities confronted with environmental injustice. Increasing a client's self esteem so that s/he feels s/he deserves to live in a nonpolluted community might be a first step in the empowerment process. Highlighting a client's beliefs about her/his ability to influence systemic change through protests or educational workshops in the community are also examples of how individual empowerment can be applied to environmental injustice. Additionally, assisting clients to identify sociopolitical barriers is important for empowerment to occur (Toporek, 2000).

Santiago-Rivera et al. (2006) have recommended that mental health professionals provide clients with information about how the natural environment may be contributing to their presenting problems. Additionally, counselors can explore with clients the costs and benefits of becoming involved in community and environmental

change efforts. Santiago-Rivera et al. have also recommended that counselors apply their skills to help clients develop support systems in their communities.

Community Empowerment

Environmental justice scholars have suggested that community empowerment is an essential strategy in addressing environmental injustice (Cole, 1992). The community counseling model has been recommended as the optimal approach for community empowerment (Lewis et al., 1998). Lewis et al. (1998) define community counseling as "a comprehensive helping framework of intervention strategies and services that promote the personal development and well-being of all individuals and communities" (p. 5). It is assumed in this model that contextual factors can both enhance and limit a person or community's development and that a system's approach to intervention is most effective. As a result, the community counseling approach involves direct and indirect services for individuals and communities, including providing services focused on preventive education, outreach, consultation, and public policy work.

Community empowerment strategies can include contributing to the enhancement of diversity within the environmental movement. Including minority, low-income, and working-class individuals by focusing on issues that cut across racial, socioeconomic and geographic domains can strengthen the environmental justice movement and incorporate mainstream environmentalism (Bullard, 1992).

In a dissertation study focused on increasing community-based activism around environmental justice issues, Dorsey (1999) interviewed 23 community environmental

justice activists to determine the characteristics of people who get involved in community activism, the reasons why the individuals get involved, and the factors that enhance or create barriers for public participation in efforts that address environmental hazards. Dorsey found that 35% of the participants displayed a high degree of knowledge about environmental inequity prior to their involvement in community issues. Secondly, 35% also displayed strong leadership traits that were able to be translated to environmental justice issues. Third, 17% of the participants had previous knowledge and involvement in lawsuits attempting to prevent the siting of a hazardous waste facility. The author concluded that community empowerment is best sustained when long-term activists in a community form the core of the movement.

These findings suggest that mental health professionals can enhance community empowerment through educational efforts that increase the knowledge base of community members focused on environmental issues relevant to their specific locale. Additionally, in collaboration with communities, mental health professionals can identify long-term community activists that are respected in the community and can mobilize the community around environmental injustice. Finally, mental health professionals can also be involved in creating alliances between community members and individuals who are knowledgeable about the litigation process to facilitate environmental injustice lawsuits.

Social Action: Public Policy, Research, and Education

Strategies that attempt to change political, educational, and societal institutions are representative of the social action end of the advocacy continuum. One of the primary goals of systemic interventions is to remove the barriers faced by clients and communities (Toporek, 2000). Mental health professionals can get involved in social action activities by influencing public policy and legislation, through their involvement in community groups and professional organizations (e.g., American Counseling Association, American Psychological Association), through community-based research projects, and through educational activities.

In terms of public policy, mental health professionals can educate themselves about the connection between inequality and environmental regulation mentioned in the first section of this literature review. In an analysis of the literature, Gelobter (1992) concluded that the unequal distribution of pollution could be eliminated through legislative efforts. After they are informed, mental health professionals can create coalitions with other professionals to lobby legislators to ensure that public policies result in the equal distribution of environmental risks and benefits.

The implementation of the precautionary principle through public policy has also been recommended by environmental justice advocates. The precautionary principle assumes that environmental regulations should err on the side of safety regarding hazardous chemicals and production processes (Brulle & Pellow, 2006). Influencing policymakers to require industry to prove chemicals are safe prior to their release into

the atmosphere is another way in which mental health professionals can exercise their influence on the legislative process.

In terms of research, one approach that combines research with social action is community-based participatory research. Community-based research projects are typically initiated by community members and carried out in combination with faculty at universities for the primary purpose of social transformation (Kemmis & McTaggart, 2005). The community-based approach to research has been recommended by the Institute of Medicine (1999) as an optimal approach to examine issues of environmental inequity. Examples of community-based participatory research projects are prominent in addressing environmental injustice and include efforts to reduce the number of factory farms in the rural south (Tajik & Minkler, 2006), increasing youth leadership regarding exposure to environmental hazards (Delp, Brown, & Domenzain, 2005), addressing environmental health disparities through community mobilization (Minkler et al., 2008), and research with indigenous populations focused on environmental contamination (Santiago-Rivera et al., 1998). Community-based participatory research has been identified as a way to address the power differentials in research endeavors, while also integrating social change outcomes into the research process itself.

In terms of education, Gardner (2003) identified five ways in which social and environmental issues can be linked through educational activism. Advocating for the public right to know is the first area. Mental health professionals can educate community groups about the psychological and health risks associated with environmental conditions in the community. This may naturally lead to the second area,

which involves participation in community discussions about environmental injustice. Third, mental health professionals can work to strengthen the social justice mission of environmental groups. Because mental health professionals see social injustice on a daily basis in their practice (Santiago-Rivera et al., 2006), they are in a prime location to educate community groups about the connections between exploitation of natural environments and exploitation of human communities. Defining environmental issues from the perspective of marginalized groups is the fourth area in which mental health professionals can educate communities about the relationship between social and environmental justice. Finally, by utilizing culturally sensitive communication practices, mental health professionals can establish alliances among environmental and human rights groups to help both constituencies clarify their shared goals.

Summary

In summary, grassroots community mobilization efforts have been found to be effective at reducing environmental risks in communities of color and low-income communities. The environmental justice movement has been particularly successful at creating a national and international movement addressing the concerns of marginalized groups focused on the risks associated with hazardous waste facilities, the toxic production of chemicals, and environmental racism. Additionally, scholars and activists have recommended that advocacy efforts, including empowerment and social action strategies, be applied to environmental concerns. Due to the fact that advocacy efforts have been integrated into the counseling psychology, counseling, and social work

professions for decades, mental health professionals are situated perfectly to use their skills in service of marginalized groups and to devote increased attention to environmental injustice.

Assessment of Professional Competence

A commitment to social justice is at the core of professional competence for mental health professionals (Goodman et al., 2004; Ivey & Collins, 2003; Ratts, D'Andrea, & Arredondo, 2004). Throughout this dissertation, I have outlined how people of color and low-income individuals are exposed to environmental risks at higher rates than other groups due to social mechanisms that create unjust conditions. As such, the experience and consequences of environmental injustice are especially relevant to mental health professionals. Because the emerging discussion in the counseling professions regarding environmental justice is relatively recent (Santiago-Rivera et al., 2006), measures do not exist to assess the competency of mental health professionals and trainees regarding environmental justice advocacy. Two dominant social justice competency frameworks exist in the counseling profession that can be utilized to guide development of an environmental justice advocacy assessment. The two frameworks include the multicultural competency framework and the advocacy competency framework.

The first content area focuses on the assessment of multicultural competence. The Multicultural Counseling Competencies (MCCs) were developed through the collaborative efforts of mental health professionals who saw the need for guidelines and

assessment tools that could enhance a counselor's ability to deliver culturally appropriate services to diverse populations (Sue et al., 1992). The origin of the MCCs dates back to the Civil Rights era and the formation of numerous professional associations intended to support the mental health needs of diverse groups (Arredondo, Tovar-Blank, & Parham, 2008). Through a series of scholarly articles, counseling professionals identified dominant themes that indicated a professional was on the path toward multicultural competence (American Psychological Association, 2002; Sue et al., 1992; Arredondo & Perez, 1999). This endeavor ultimately led to the development of 31 MCCs (Sue et al., 1992) and the operationalization of the competencies in an article by Arredondo et al. (1996).

The MCCs are focused on three domains: (a) counselor awareness of biases and assumptions, (b) counselor awareness of client's worldview, and (c) culturally appropriate intervention strategies. Additionally, the multicultural counseling competencies have been developed to assess counselors' attitudes and beliefs, knowledge and awareness, and skill dimensions. Numerous assessment instruments have been developed to align with the MCCs. The most commonly used assessments are the Cross-Cultural Counseling Inventory-Revised (CCCI-R; LaFromboise, Coleman, & Hernandez, 1991), the Multicultural Counseling Inventory (MCI; Sodowsky, Taffe, Gutkin, & Wise, 1994), the Multicultural Awareness-Knowledge-and-Skills Survey (MAKSS; D'Andrea, Daniels, & Heck, 1991), and the Multicultural Counseling Knowledge and Awareness Scale (MCKAS; Ponterotto, Gretchen, Utsey, Riger, & Austin, 2002). The MCI, MAKSS, and MCKAS were designed to measure multicultural

competence as perceived by the mental health professional. The only aforementioned assessment that incorporates observational feedback to evaluate the MCC dimensions is the MCI.

The relationship between the MCCs and advocacy work is strong. Scholars have suggested that political advocacy for minority populations needs to be an essential aspect of professional identity for clinicians who exhibit multicultural competence (Toporek & Reza, 2001). As a result, counseling professionals have collaborated to develop the Advocacy Competencies (ACs; Lewis, Smith-Arnold, House, & Toporek, 2004). The ACs were created to provide guidelines for clinicians to conduct individual and systemic interventions. The ACs were developed for counselors and counselor educators focused on clients and students, schools and communities, and the public. The competencies embody both an "acting with" approach and an "acting on behalf" approach to advocacy. Similar to the MCCs, a few instruments have been developed to assess advocacy competence. A 188-item qualitative instrument entitled the Social Justice Advocacy Readiness Questionnaire (Chen-Hayes, 2001) and an 80-item quantitative scale entitled the Social Justice Advocacy Scale (Van Soest, 1996) have been developed to assess advocacy attitudes, knowledge, and behaviors.

A blend of both frameworks was utilized to develop a measure focused on environmental justice advocacy. Environmental justice content was drawn from the major themes discussed in the literature. Namely, content focused on environmental inequality, the health impacts of exposure to environmental hazards, and advocacy efforts intended to empower individuals and communities through skill-building and

social action is represented in the measure. The multicultural competence framework was utilized, assessing for counselor (a) attitudes, (b) knowledge, and (c) skills.

Purpose of the Study

The purpose of this study was to develop and initially validate a measure entitled the Environmental Justice Advocacy Scale (EJAS). The measure is intended to assess competence for mental health professionals and trainees in the three major content areas found in the environmental justice literature: (a) environmental inequality, (b) health impacts of exposure to environmental hazards, and (c) community mobilization and advocacy strategies. Following MCC models, the EJAS assesses perceived Attitudes, Knowledge, and Skills by incorporating the aforementioned environmental justice content areas.

This study resulted in the development of an instrument that can be utilized in professional environments and training programs. This instrument will help identify self-perceived attitudes, knowledge, and skill levels of mental health professionals focused on environmental justice. Additionally, it will allow mental health professionals and trainees to assess their attitudes, knowledge, and ability to (a) educate themselves and communities about exposure to environmental hazards, (b) intervene in the lives of clients and communities to reduce the physical and psychological consequences associated with exposure to environmental hazards, (c) empower clients so that they may increase their ability to gain access to healthy environmental resources, (d) consult with community members to increase community members' political power, and

(e) influence policymakers to effect systems change regarding environmental justice issues.

The EJAS content focuses on the intersection between social and environmental justice and is based on the ecological model (Bronfenbrenner, 1979). The next section will discuss the ecological model and how it relates to the environmental justice advocacy.

Theoretical Base for the Environmental Justice Advocacy Scale

In order for environmental advocacy efforts to be effective, interventions need to be targeted at individuals, communities, and institutions (Brulle & Pellow, 2006; Santiago-Rivera et al., 2006). The ecological model identified by Bronfenbrenner (1979) is perfectly suited to address environmental injustice because it addresses the contextual factors that influence human development. The ecological model assumes that human development is a product of the interaction between a person and his/her environment. As such, the development of the person cannot be viewed outside the context of her roles, activities, and interpersonal relationships. Development is also affected by relations between environmental settings and the larger contexts in which the settings are embedded. Bronfenbrenner claimed that the environment can be viewed as a nested arrangement of concentric structures and that each structure is contained within a larger structure. He outlined four central structures: (a) the microsystem, (b) mesosystem, (c) exosystem, and (d) macrosystem.

The microsystem involves the elements (e.g., pattern of activities, roles, and interpersonal relationships) experienced by a person in specific settings. Each setting has particular physical and material characteristics. The person is at the center of the system with unique phenomenological characteristics such as perceptions, awareness, and the ability to be self-reflective. Bronfenbrenner (1979) was greatly influenced by Lewin (1935) and believed that the most important reality was the reality that exists in the mind of the person. This theoretical assumption concurs with the environmental justice literature that discusses the importance of a person's perception of exposure to environmental hazards and its impact on overall health, rather than simply examining physical exposure levels to environmental toxins.

The second structure of influence on the developing person is the mesosystem. The mesosystem involves the interrelationships between two or more settings. Settings might include a person's family, work environment, or social support system. The environmental justice literature focusing on changing work environments due to environmental contamination and its impact on social relations illustrates this point.

The exosystem is the third structure experienced by the person. The exosystem includes all settings that do not involve the person as an active participant but affect the person nonetheless. An example of this might include EPA policies that disproportionately favor Euro-Americans over ethnic minorities in terms of the cleanup practices concerning environmental contamination.

Finally, the fourth structure of influence is the macrosystem. The macrosystem includes societal beliefs and ideologies about economic systems, as well as dominant

political and religious institutions. An example of the influence of the macrosystem can be seen in the differences in assumptions between a capitalist approach to environmental resources and an indigenous approach to the environment. A capitalist approach assumes that the environment is a resource to be exploited for financial gain, whereas the indigenous approach described in previous examples involving the Mohawk community (Santiago-Rivera et al., 2007) assumes that the natural environment is a source of spiritual connection. These two differing ideologies have major consequences for the health of the environment and a community's ability to express itself in culturally congruent ways.

Studies and Hypotheses

This dissertation was comprised of the development of an initial item pool and three follow-up studies examining the psychometric properties of the EJAS. The purpose of the first study was to solicit qualitative feedback about the initial version of the measure. Feedback emphasized the clarity of the instructions, scoring scale, and specific items. The primary purpose of Study 1 was to develop a preliminary version of the survey that could be analyzed statistically in Studies 2 and 3. As a result, no hypotheses were identified for Study 1.

The purpose of Study 2 was to examine the initial factor structure of the Modified EJAS resulting from Study 1. Based on the results of Study 1, the Modified EJAS consisted of a 47-item measure. The measure was designed to embody the Attitudes, Knowledge, and Skills domains. An Exploratory Factor Analysis was

conducted to identify potential subscales. Additionally, internal consistency, concurrent validity, and discriminant validity were analyzed. The following hypotheses were examined in Study 2:

Hypothesis 1: A three factor structure will best account for variance in the EJAS items. I expect the factors to be organized in terms of (a) Attitudes, (b) Knowledge, and (b) Skills.

Hypothesis 2: The EJAS factors will have moderate correlations with endorsement of obligations to social justice advocacy activities as part of the role of a mental health professional (Demographic Questionnaire).

Hypothesis 3: The EJAS factors will have positive, moderate-high correlations with environmental attitudes, knowledge, and behaviors as measured by the ECOSCALE (Stone, Barnes, & Montgomery, 1995).

Hypothesis 4: The EJAS factors will have positive, low correlations with self-esteem as measured by the Rosenberg Self-Esteem Scale (Rosenberg, 1965).

Hypothesis 5: The EJAS factors will have low, nonsignificant correlations with social desirability as measured by the Marlowe-Crowne Social Desirability Scale-Form C (M-C SDS Form C; Crowne & Marlowe, 1960).

The purpose of Study 3 was to examine the internal structural validity of the Environmental Justice Advocacy Scale with a national sample of mental health professionals. Three-factor and four-factor models were analyzed based on the results of the Exploratory Factor Analysis in Study 2.

The following hypotheses were examined in Study 3:

Hypothesis 1: EJAS responses can be explained by three factors: (a) Attitudes, (b) Knowledge, and (c) Skills.

Hypothesis 2: Each item measure has a nonzero loading on its corresponding EJAS factor and a zero loading on all other factors.

Hypothesis 3: The three EJAS factors are correlated.

Hypothesis 4: When one compares the results of the hypothesized three-factor model with the results of the alternative four-factor models, the EJAS responses can be explained best by the three-factor model.

CHAPTER III

METHODS

Development of Initial Item Pool for the EJAS

Multiple sources were utilized in the development of the initial item pool for the EJAS (Clark & Watson, 1995; Dawes, 1987). Sources included (a) an analysis of existing literature focused on environmental justice; (b) consultation with experts; and (c) the national and international professional experiences of the investigator, focusing on environmental justice.

Method

Item Development

An initial list of 58 items was developed to reflect the construct of environmental justice advocacy. Following the recommendation of Haynes, Richard, and Kubany (1995), I incorporated relevant and representative content from the extant literature. Items were developed to focus on mental health professional and trainee attitudes, knowledge, and skills because multicultural theorists have emphasized the importance of evaluating these domains when assessing for professional competence (Sue et al., 1992; Arredondo & Perez, 2003). Content areas relevant to mental health

professionals were identified based on existing literature reviews and a content analysis of books and peer-reviewed journal articles. The relevant content areas found in the literature were (a) environmental inequality, (b) health impacts of exposure to environmental hazards, and (c) community mobilization and advocacy strategies. Thus, each item developed was closely aligned with one of these three content areas. Additionally, items were worded according to the framework for multicultural competence (Sue et al., 1992) and were divided into Attitudes, Knowledge, and Skills categories. A Likert-type scale was utilized for positively worded items based on the following range: 1 (strongly disagree), 2 (disagree), 3 (unsure), 4 (agree), and 5 (strongly agree). Negatively worded items utilized the same Likert-type scale, but were reverse-scored.

Initially, a larger pool of items was developed so that items determined to be irrelevant, nonrepresentative, or statistically nonsignificant could be deleted based on study results. Five environmental and social justice experts familiar with an ecological approach to mental health practice were consulted to obtain feedback about the initial measure to strengthen construct validity (Shadish, Cook, & Campbell, 2002). Procedures discussed by Clark and Watson (1995) were employed. I conducted structured, open-ended interviews with local experts ($n = 2$) and obtained electronic feedback from experts who lived 200 miles or further from the University of Oregon ($n = 3$). Feedback was elicited regarding the instructions, Likert-type scale, item clarity, relevance and representativeness. Each expert reviewer examined the measure and

completed a rating form and interview questions either in writing (if farther than 200 miles away) or verbally (if interviewed in person or by phone).

Of the 58 items included in the preliminary version of the EJAS, 17 items focused on Attitudes, 29 items focused on Knowledge, and 12 items focused on Skills. Of the same 58 items, content for 28 items focused on Community Mobilization and Advocacy Strategies, 17 items focused on Environmental Inequality, and 13 items focused on the Health Consequences of Environmental Hazards. Finally, all three content themes were represented within the domains of attitudes, knowledge, and skills.

Based on expert feedback, five changes were made to the measure. First, the wording of the initial instructions and items was revised to include operationalized definitions of (a) environment, (b) environmental justice, and (c) environmental hazards. Second, redundant terms such as "I believe" and "I have knowledge about" were reworded and grammatical changes were made to improve item clarity for 22 items. Third, 11 items were dropped because they were not specific enough to environmental advocacy. Fourth, nine items were added to better represent the environmental justice content across Attitudes, Knowledge, and Skills domains. Finally, 15 items (27%) were rewritten as negatively worded items, following recommendations by Comrey (1988).

The revised EJAS included 56 items that were representative of Attitudes (16 items), Knowledge (24 items), and Skills (16 items). The same 56 items also represented the environmental justice content areas. There were 18 Community Mobilization and Environmental Justice Advocacy items (six Attitudes, six Knowledge,

and six Skills items), 20 Environmental Inequality items, (six Attitudes, nine Knowledge, and five Skills items), and 18 Health Consequences of Environmental Hazards items (four Attitudes, nine Knowledge, and five Skills items).

Overview of Dissertation Studies

This dissertation involved three studies. The first study focused on a pilot test of the initial EJAS measure. The second study examined the reliability, validity, and factor structure of the EJAS measure. The purpose of the third study was to confirm the factor structure of the EJAS measure.

Study 1: Pilot Test of the EJAS

Overview

A survey was conducted to obtain feedback about the preliminary version of the EJAS. Feedback was solicited regarding the clarity of the instructions, scoring scale, items, and ease of administration in order to further refine the EJAS with the population the measure was intended to survey. Reliability and validity were addressed in Study 2.

Method

Participants

Participants were 43 doctoral students enrolled in the University of Oregon's Counseling, Clinical, and School Psychology programs. To ensure anonymity of

participants, I gathered no additional demographic data. Participants endorsed enrollment in the following programs: Scientist-Practitioner (n = 30), Clinical-Scientist (n = 7), and Other (n = 6). The age of participants ranged from 24-50 years old (M = 29.86, SD = .84). The number of years of clinical experience for participants ranged from zero to 10 years (M = 3.11, SD = 2.16). Participants reported familiarity with the ecological model (Bronfenbrenner, 1979) ranging from 1 (Very Familiar) to 4 (Very Unfamiliar). The mean familiarity level was 1.34 (SD = .12). Participants reported familiarity with the multicultural counseling competence framework ranging from 1 (Very Familiar) to 4 (Very Unfamiliar). The mean familiarity level with the multicultural competency framework was 1.82 (SD = .15).

Measures

In Study 1, the questionnaire consisted of a demographic section, the preliminary version of the EJAS, and questions regarding feedback about the measure.

Demographic information. Participants were asked to complete a brief demographic questionnaire. Any information that could identify participants was not collected. Participants were asked questions regarding (a) their year in their training program, (b) the training model utilized in their program, (c) their satisfaction with their training program, (d) their level of familiarity with social justice issues, 4) their level of familiarity with the multicultural competence framework, and 5) their number of years of experience as a counselor. To ensure participants' anonymity, I did not collect data on gender, racial/ethnic background, professional background, sexual orientation, and

socioeconomic status. Demographic variables were utilized for descriptive purposes and were not analyzed statistically to determine differences in response variance.

Preliminary EJAS. The preliminary EJAS is a 56-item self-report measure. The EJAS assesses professional counselor and trainee attitudes/beliefs, knowledge, and skills regarding environmental justice advocacy. The measure includes both positively and negatively worded items. Instructions for completion of the measure are as follows:

> This survey is designed to help you evaluate your current attitudes, beliefs, knowledge, and skills related to environmental justice advocacy. The survey includes a list of statements focused on environmental justice advocacy. Please read each statement carefully and refer to the definitions on the previous page as you respond to each statement. Based on the agreement scale outlined below, select the response that best fits your reaction to each statement.

Sample EJAS items include "It is important for social justice organizations to address environmental injustice" and "I am aware of at least two roles that mental health professionals can engage in to address environmental injustice." Items are scored on a Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Scores range from 56-336. Negatively worded items are reverse scored. Higher scores indicate higher levels of endorsement of pro-environmental justice advocacy attitudes and beliefs, as well as higher levels of perceived knowledge and skills. The modified EJAS items were presented to participants in a format that alternated between attitudes, knowledge, and skills items.

In addition to the measure, participants were also asked to provide feedback and comments regarding clarity and content of the scale instructions, scoring scale, and items. The instructions for this section of the measure are as follows: "In addition to

survey responses for the Environmental Justice Advocacy Scale (EJAS), the researcher is seeking feedback about the clarity of directions, scoring scale, and survey questions. At the end of each page, you will be asked to provide feedback about the items. Please select the response that best fits your reaction to the items." Participants were asked to rate each question for clarity based on a Likert-type scale ranging from 1 (extremely unclear) to 6 (extremely clear). At the end of each page of the online survey, participants were requested to provide recommendations for rewording of items, the instructions, and the scoring scale. Feedback was requested on each page so that participants were able to refer to the current page rather than being required to rely on their memory from previous pages.

Procedure

Participants were recruited through the University of Oregon (UO) Counseling Psychology, Clinical Psychology, and School Psychology doctoral student listservs after (a) IRB approval was obtained; and (b) permission had been sought from the UO Counseling, Clinical, and School Psychology Training Directors. Initially, participants were contacted by email in early January 2009 and were encouraged to complete the survey. Participants also received a flyer in their student mailboxes one week after the initial contact. Two follow-up emails were sent to potential participants to encourage a higher return rate. The follow-up emails occurred one and two weeks after the students received the advertisement in their mailboxes. Data collection closed one month after the initial contact.

An Internet-based questionnaire was administered due to the benefits associated with this method. In a study examining differences between Internet-based and traditional methods of survey administration, Gosling, Vazire, Srivastava, and John (2004) found that Internet-based surveys provided investigators with access to larger and more diverse samples, were more efficient, less expensive, and, when replicated, findings were consistent with those obtained via traditional methods. For these reasons, an Internet-based questionnaire was utilized to access an appropriate sample for this study.

The development of the online questionnaire followed online survey development principles outlined by Dillman (2002). Participation eligibility criteria included current enrollment in the (a) UO Counseling Psychology Doctoral Program, (b) UO Clinical Psychology Doctoral Program, or (c) UO School Psychology Program.

Study advertisements were developed in a paper format and included (a) a brief description of the study, (b) eligibility criteria, (c) information about the length of time required to complete the survey, and (d) a web-based link directing participants to the online survey. The web-based link directed the participants to a statement of informed consent. The informed consent statement consisted of a brief description of the study, a description of the voluntary nature of the study (and the participants' right to decline participation without negative consequences; see Appendix). Because the survey was anonymous, participants did not sign an informed consent form, but acknowledged consent by completing the survey.

The amount of time required for survey completion was 20-25 minutes and required participants to complete the Environmental Justice Advocacy Scale and provide feedback regarding the clarity of directions, scoring scale, and items. At the end of the survey, participants were given an opportunity to request additional information about the study, and were provided with contact information for the investigator and faculty advisor. Participants were also provided with information regarding campus and community support services.

To ensure confidentiality, the web-based survey was administered through the online data-collection service entitled SurveyMonkey (2009). The data-collection service provides confidential administration of surveys, data storage, and retrieval designed to meet stringent IRB standards. SurveyMonkey uses a secure server to store all data.

Study 2: Exploratory Factor Analysis, Internal Consistency and Concurrent and Discriminant Validity

Overview

The purpose of Study 2 was to examine the initial factor structure of the modified 47-item Environmental Justice Advocacy Scale, revised based on the results of Study1. Exploratory Factor Analysis was conducted to identify potential subscales. Additionally, internal consistency, concurrent validity, and discriminant validity were examined.

Method

Participants

Participants were 294 mental health professionals and trainees (39 males, 252 females, and three individuals who identified as "other") from diverse backgrounds, including graduate students (n = 212), mental health professionals (n = 59), and faculty members (n = 23) in the specialties of counseling psychology (n = 41), counseling (n = 82), and social work (n = 120). The age of participants ranged from 22 to 66 years with a mean of 34.33 years (SD = 10.76).

A total of 240 (81.6%) participants self-identified as European American/White, 18 (6.1%) as Multiracial, 12 (4.1%) as African American/Black, nine (3.1%) as Hispanic/Latino(a)/Chicano(a), nine (3.1%) as Asian/Asian American, three (1.0%) as Native American/Alaskan Native, two (.7%) as Pacific Islander, and one participant (.3%) did not report his/her ethnicity.

Participants' levels of professional experience ranged from no experience to 40 years of experience. The mean level of experience was 4.62 years (SD = 6.61).

Measures

The questionnaire in Study 2 consisted of a demographic information section, the Modified Environmental Justice Advocacy Scale, the ECOSCALE, the Rosenberg

Self-Esteem Scale, and the Marlowe-Crowne Social Desirability Scale-Short Form C. All instruments can be found in the Appendix.

Demographic information. A demographic questionnaire was developed for this study. Participants were asked questions regarding their age, gender, ethnicity, professional status, academic program and status, areas of specialization, educational background, and years of clinical experience (1 item per area). Participants responded to a set of options for all items except for questions regarding their age and number of years of clinical experience. An "other" option was also provided for each question to allow participants to identify alternative responses or supply further details. Additionally, participants were asked two questions regarding their beliefs about the role of mental health professionals as social justice advocates. The two items were "I believe that mental health professionals are obligated to promote social justice through *client advocacy* as part of their professional role" and "I believe that mental health professionals are obligated to promote social justice through *political* advocacy as part of their professional role." Definitions were provided for the terms "client advocacy" and "political advocacy." Participants were asked to rate each item on a Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree).

Modified Environmental Justice Advocacy Scale (Modified EJAS). The Modified EJAS consists of 47 items. The Modified EJAS assesses professional counselor and trainee attitudes (13 items), knowledge (17 items), and skills (17 items), regarding environmental justice advocacy. The measure includes both positively and negatively worded items. The instructions for the Modified EJAS are as follows:

> This survey is designed to help you evaluate your current attitudes, beliefs, knowledge, and skills related to environmental justice advocacy. The survey includes a list of statements focused on environmental justice advocacy. Please read each statement carefully and refer to the definitions below as you respond to each statement. Based on the agreement scale outlined below, select the response that best fits your reaction to each statement.

Sample Modified EJAS items include "it is important for mental health professionals to teach clients skills to reduce their stress associated with hazardous environmental condition" and "I can describe how people transition through psychological stages once they become aware of their exposure to environmental contaminants." Participants were asked to rate each item on a Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Total scores range from 47-282. Negatively worded items are reverse scored. Higher scores indicate higher levels of endorsement of attitudes and beliefs related to pro-environmental justice advocacy, as well as higher levels of perceived knowledge and skills. The modified EJAS items were presented to participants in a format grouped by attitude items, knowledge items, and skills items.

ECOSCALE. The ECOSCALE (Stone et al., 1995) was utilized to establish concurrent validity for this study. The ECOSCALE is a 31-item scale comprised of seven subscales: (a) Opinions and Beliefs (six items), (b) Affective Awareness (four items), (c) Willingness to Act (four items), (d) Attitude (four items), (e) Action Taken (five items), (f) Ability to Act (four items), and (g) Knowledge (four items). The ECOSCALE is an instrument that assesses environmental responsibility. The authors define environmental responsibility as "a state in which a person expresses an intention

to take action directed toward remediation of environmental problems, acting not as an individual concerned with his/her own economic interests, but through the citizen-consumer concept of societal-environmental well-being" (Stone et al., 1995, p. 601). The seven subscales capture attitudes, awareness, behaviors, and knowledge. Attitudes related to environmental resources, awareness about resource use and environmental problems, the willingness and ability to act in environmentally responsible ways, and knowledge about specific environmental concerns are all represented in the instrument. Sample items include "I attend environmental/conservation group meetings" and "There is nothing the average citizen can do to help stop environmental pollution." The instrument uses a Likert-type scale. The Opinions and Beliefs, Awareness, Attitude, and Knowledge subscales scores range from 1 (strongly disagree) to 5 (strongly agree). The Willing to Act, Action Taken, and Ability to Act subscale scores range from 1 (never) to 5 (always). Items 1, 3, 5, 6, 7, 9, 13, 14, 16, 18, 22, 24, 28, 29, and 30 are reverse scored. Item 9 is intended for males only. Item 14 is intended for females only. Higher scores indicate higher levels of environmentally responsible attitudes, awareness, behaviors, and knowledge.

The original measure was administered to a sample (n = 238) of undergraduate and graduate students at a major southeastern state university. The authors did not report demographic information for their sample. The authors reported coefficient alphas for the full scale at .93. Stone et al. (1995) indicated that they conducted reliability analyses for the subscales, but did not report the results. Reliability analyses for the ECOSCALE Full Scale and Subscales were conducted. For the current sample the reliability

coefficients for the ECOSCALE Full Scale and the seven subscales were as follows: .79 (ECOSCALE Full Scale), .31 (Opinions and Beliefs), .51 (Affective Awareness), .35 (Willing to Act), .42 (Attitude), .58 (Action Taken), .31 (Ability to Act), and .33 (Knowledge).

Rosenberg Self-Esteem Scale (RSE). The RSE (Rosenberg, 1965, 1989) was utilized to establish discriminant validity for this study. The RSE is a 10-item measure that assesses a unidimensional concept entitled Global Self-Esteem. The measure assesses feelings of self-acceptance and self-respect. Sample items include "On the whole, I am satisfied with myself" and "I wish I could have more respect for myself." The measure includes positively and negatively worded items. The response scale is a 4-point Likert-type scale, ranging from 0 (strongly disagree) to 4 (strongly agree). Negatively worded items are reverse scored. The range is based on the individual's actual endorsement of feelings about oneself. There are multiple ways in which a total score can be obtained. The method outlined by Hagborg (1996) was utilized for this study for two reasons. First, Hagborg retained the original authors' scoring scale for their study. Second, the author reported reliability analyses for their sample. The method employed by Hagborg computes a total RSE score by summing the responses to all items. Higher scores reflect higher levels of self-esteem. Hagborg reported coefficient alphas of .76 when RSE was administered to a sample of middle school students.

Marlowe-Crowne Social Desirability Scale-Short Form C. The Marlowe Crowne Social Desirability Scale-Short Form C (M-C SDS-Form C; Reynolds, 1982) was administered to assess for socially desirable responding. Multiple short versions of

the M-C SDS have been developed to reduce administration time, while retaining internal consistency of the instrument. Reynolds (1982) found that Form C showed the highest reliability of all of the short forms and was interpreted as adequate ($\alpha = .76$). Reynolds also reported that the reliability for Form C was comparable to the original form in the study sample. Sample questions include "It is sometimes hard for me to go on with my work if I am not encouraged" and "I sometimes feel resentful when I don't get my way." Participants respond to whether statements are either true or false. Scores range from 0-13.

Procedures

The demographic questionnaire, Modified EJAS, ECOSCALE, RSE, and the M-C SDS-Form C were completed in an online format by participants. Respondents were recruited through multiple pathways. Counseling Psychology participants were recruited by contacting Training Directors associated with counseling psychology doctoral programs accredited by the American Psychological Association and through the Division 17: Society for Counseling Psychology professional listserv. Counseling participants and mental health professionals were recruited by contacting the Training Directors associated with Council for Accreditation of Counseling and Related Educational Programs (CACREP) graduate programs, the COUNSGRADS listserv for counseling graduate students across the U.S., the Association for Counselor Education and Supervision Graduate Student listserv (ACESGS), the professional level Counselor Education and Supervision listserv (CESNET), and the Counselors for Social Justice

listserv. Social work graduate students and professionals were recruited by contacting the Training Directors of programs associated with the Council on Social Work Education (CSWE), members of the National Association of Social Work listserv, the Student Association of Social Workers, and CSWE online discussion forums.

Training Directors of Counseling Psychology, Counselor Education, and Social Work programs were sent an email requesting that they forward the survey to students in their programs. Graduate students and mental health professionals were sent electronic information directly through email. A link to the online survey was included in all of the emails. All participants were informed that their participation in the survey was voluntary and that they could cease participation at any time. Participants were informed of their rights and were provided with contact information for the primary researcher and research advisor so they could ask questions about the research study both prior to and after their participation. Participants were also informed about compensation. Each participant who completed the survey was eligible for entrance into a gift card drawing. At the end of the data-collection phase, three $100 gift cards were given to three randomly selected participants. Upon completion of data collection, the sample was randomly divided in half using the random number generator function of SPSS. One half of the data was analyzed in Study 2 and the second half of the data was analyzed in Study 3.

Study 3: Confirmatory Factor Analysis of the Environmental Justice Advocacy Scale

Overview

The purpose of Study 3 was to examine the internal structural validity of the Environmental Justice Advocacy Scale with a national sample of mental health professionals. Three-factor and four-factor models were analyzed based on the results of the Exploratory Factor Analysis in Study 2.

Method

Participants

Participants were 295 mental health professionals and trainees (58 males, 236 females, and 1 individual who identified as "other") from diverse backgrounds, including graduate students (n = 216), mental health professionals (n = 58), and faculty members (n = 20) in the specialties of counseling psychology (n =39), counseling (n = 85), and social work (n = 123). The age of participants ranged from 21 to 71 years with a mean of 34.09 years (SD = 10.73).

A total of 236 (80.0%) participants self-identified as European American/White, 13 (4.4%) as Multiracial, 11 (3.7%) as African American/Black, 18 (6.1%) as Hispanic/Latino(a)/Chicano(a), 12 (4.1%) as Asian/Asian American, and two (.7%) as Native American/Alaskan Native.

Participants' levels of professional experience ranged from no experience to 40 years of experience. The mean level of experience was 4.30 years ($SD = 6.56$).

Measures

The measures in Study 3 consisted of a Demographic Questionnaire, the Modified Environmental Justice Advocacy Scale, the ECOSCALE, the Rosenberg Self-Esteem Scale, and the Marlowe-Crowne Social Desirability Scale Short Form C. All instruments can be found in the Appendix. Due to the purpose of Study 3, only the data from the Demographic Questionnaire and the Modified EJAS were analyzed.

Demographic information. The demographic questionnaire utilized for this study was the same demographic form developed for Study 2.

The Modified Environmental Justice Advocacy Scale (Modified EJAS). The Modified EJAS consisted of 47 items and was the same measure utilized in Study 2.

Procedures

Data were collected for Studies 2 and 3 at the same point in time. Therefore, procedures for Study 3 were the same as Study 2. Upon completion of data collection, the sample was randomly divided in half using the random number generator function of SPSS. One half of the data was analyzed in Study 2 and the second half of the data was analyzed in Study 3.

Model

To test the replicability of the factor structure produced by the Exploratory Factor Analysis in Study 2, I conducted a Confirmatory Factor Analysis using AMOS 16.0 (Arbuckle, 2007). I tested the hypothesized model and two alternative models that were suggested by the data in Study 2. The hypothesized model resulted from the EFA and consisted of 47 items measuring mental health professionals' attitudes, knowledge, and skills regarding environmental justice advocacy. Each measured variable was associated with one of three first-order latent variables (Attitudes, Knowledge, and Skills) via a single path. The first alternative model I tested consisted of the same 47 items in the hypothesized model, but each of the items was associated with one of four first-order latent variables (Attitudes, Knowledge-General Environmental Justice, Knowledge-Psychological and Physical Health Environmental Justice, and Skills) via a single path. The second alternative model I tested was also suggested from the results of Study 2. The third model consisted of 46 items from the EJAS (items 1-45 and item 47) also measuring mental health professionals' attitudes, knowledge, and skills regarding environmental justice advocacy. Each measured variable was associated with one of four first-order latent variables (Attitudes, Knowledge-General Environmental Justice, Knowledge-Psychological and Physical Health Environmental Justice, and Skills).

For all three models, I set the first measurement path for each latent variable to 1.0 so that a scale could be established for the remaining variables. Factor variances and covariances were freely estimated in all models and no residuals were allowed to

correlate. Multiple goodness-of-fit indices were utilized to evaluate model fit: χ^2 approximation of the discrepancy function, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA).

CHAPTER IV

RESULTS

Results for Study 1: Pilot Test of the EJAS

The purpose of the analysis for Study 1 was to determine if the scale, instructions, or particular items were unclear. All items that were negatively worded were reverse scored. Next the data were screened for missingness. Little's MCAR Test was conducted and found to be significant at the $p < .05$ level, thus indicating that the data were not Missing at Random. Simulation studies conducted to identify solutions for data Missing at Random (MAR) or Not Missing At Random (NMAR) suggest that imputation is an appropriate method to account for missing data that are either MAR or NMAR (Little & Rubin, 2002). Therefore, missing data were imputed using the maximum likelihood estimation.

The data set was then evaluated to determine if the assumptions for normality were met. Histograms were reviewed to assess for restricted range and skewness. I identified all items that were restricted within a 3-data-point range (e.g., 1-3, 2-4, 3-5, 4-6). Additionally, I assessed items for linearity by reviewing the scatterplot matrices. Next I evaluated the correlation matrices for the items. I identified correlations that were significant ($p < .05$), zero or low correlations, negative correlations, and determined if any items were perfectly correlated.

In addition to the data for each item, the quantitative and qualitative data indicating clarity of the scale, instructions, and item wording were evaluated. For the quantitative data, 95% confidence intervals were identified to indicate upper and lower bounds for the clarity of each item. Any items receiving a mean score of < 5 on a Likert-type scale of 1 (extremely unclear) to 6 (extremely clear) were identified and considered for revision.

After reviewing the data, I considered all of the results (quantitative and qualitative) and identified general concerns and specific items needing to be removed or reworded as indicated by participant feedback. Based on the data, five general changes were made to the scale: (a) definitions of "environment," "environmental justice," and "environmental hazards" were listed at the bottom of each page of the survey so that participants could refer to the definitions more frequently; (b) the scoring scale was repeated more frequently on each page to prevent high levels of scrolling by participants; (c) all items within each domain (Attitudes, Knowledge, and Skills) were reworded to be more consistent within the domain (e.g., Attitude items were reworded to begin with "I believe . . ."); (d) eight items were reworded and recategorized to increase the clarity of the question (four Knowledge items and four Skills items); and (e) nine items were removed due to a restricted range (e.g., 3-data-point range or less) and low correlations with other items (r = <.20).

The Revised EJAS consisted of 47 items, including 13 Attitudes, 17 Knowledge, and 17 Skills items. The Revised EJAS was utilized in Study 2.

Results for Study 2: Exploratory Factor Analysis, Internal Consistency and Concurrent and Discriminant Validity

A large data set was collected to be analyzed for Studies 2 and 3. After labeling and reverse-scoring all relevant variables, assessment of the extent and type of missing data was conducted for the entire data set (n = 707; Little & Rubin, 2002). One hundred and eighteen cases were identified as inadequate, and cases were deleted using the following rules: (a) cases with 50% or more missing data on any one measure (n = 98); (b) cases in which a respondent did not meet criteria for the study (e.g., inadequate education level (n = 2) and inappropriate profession (n = 1); (c) cases with gender data missing, due to need for gender data on the ECOSCALE measure (n = 4); and (d) cases in which respondent specified taking a previous version of the EJAS (n = 13).

Little's MCAR Test was then conducted and found to be significant, χ^2 (23777) = 24546.66, $p < .001$, thus indicating that the data were not Missing Completely at Random. Missing data were imputed using the SPSS Missing Values Analysis 16.0 module (SPSS, 2007). The maximum likelihood method was conducted based on the same rationale as Study 1 (Little & Rubin, 2002).

The final complete data set consisted of 589 participants. The random number generator function of SPSS 16.0 was used to generate random numbers for the data set. Cases were sorted in numerical order and the data set was split in half. The first data set consisted of 294 participants and was utilized to conduct the EFA, reliability, and

validity analyses in Study 2. The second data set consisted of 295 participants and was utilized to conduct the Confirmatory Factor Analysis in Study 3.

After the original data set was split in half, preliminary analysis was conducted to test for critical statistical assumptions underlying factor analysis. Descriptive statistics were analyzed to determine whether the data met the assumptions of multivariate normality, as well as linearity, and identified whether influential outliers were present (e.g., histograms, scatter plots, examination of restricted range; Tabachnik & Fidell, 2007). There were no constants present in the data. The data met the assumptions for normality and linearity. Due to the nature of the predetermined options for the online scoring scale, no outliers were present. Correlations between EJAS items were examined, and no negative or perfect correlations were found.

Identifying the Underlying Factor Structure for the EJAS

The sample size of 294 participants exceeded the minimum recommended 5:1 ratio (5 participants: 1 item) suggested in the literature (Stevens, 2002). Two initial analyses were conducted to determine the appropriateness of the 47 items for factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .95. and Bartlett's test of sphericity was statistically significant ($p < .001$), showing that nonzero correlations existed. The results of these two statistical tests indicated that factor analysis was an appropriate method to examine the psychometric qualities of the measure (Tabachnick & Fidell, 2007). Due to the imputation procedure conducted earlier, there were no missing values. I conducted factor analysis using principal-axis

factoring, with a direct oblimin rotation. Oblique rotation (rather than orthogonal) was selected due to the likelihood that the emergent factors would be correlated because of the relationships outlined in the literature between attitudes, knowledge, and skills (D'Andrea et al. 1991; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Ponterotto, Gretchen, Utsey, Riger, & Austin, 2002). The scale was created to assess these three related aspects of environmental justice advocacy.

Based on the recommendation of Preacher and MacCallum (2003), multiple criteria were used to identify the underlying factor structure of the EJAS: (a) Cattell's scree test (Cattell, 1966); (b) Kaiser's criterion with Eigenvalues > 1; (c) results of a Parallel Analysis (O'Connor, 2000), and partial factor loadings above |.35| excluding cross-loadings on multiple factors;

I conducted Cattell's (1966) subjective scree test and considered all factors before the last large drop (Gorsuch, 1983). The results suggested a three-factor solution. The scree plot is shown in Figure 1.

Using the Kaiser criterion, I identified factors with Eigenvalues > 1. The Eigenvalues from the EFA of the current sample and the Parallel Analysis (PA) are listed in Table 1.

The results from the current sample identified six factors with Eigenvalues >1. The results of the Parallel Analysis (PA) suggested a three-factor structure. A comparison of the Eigenvalues for the random data with the Eigenvalues of the actual data showed that there was only a .05 difference between the two Eigenvalues for the

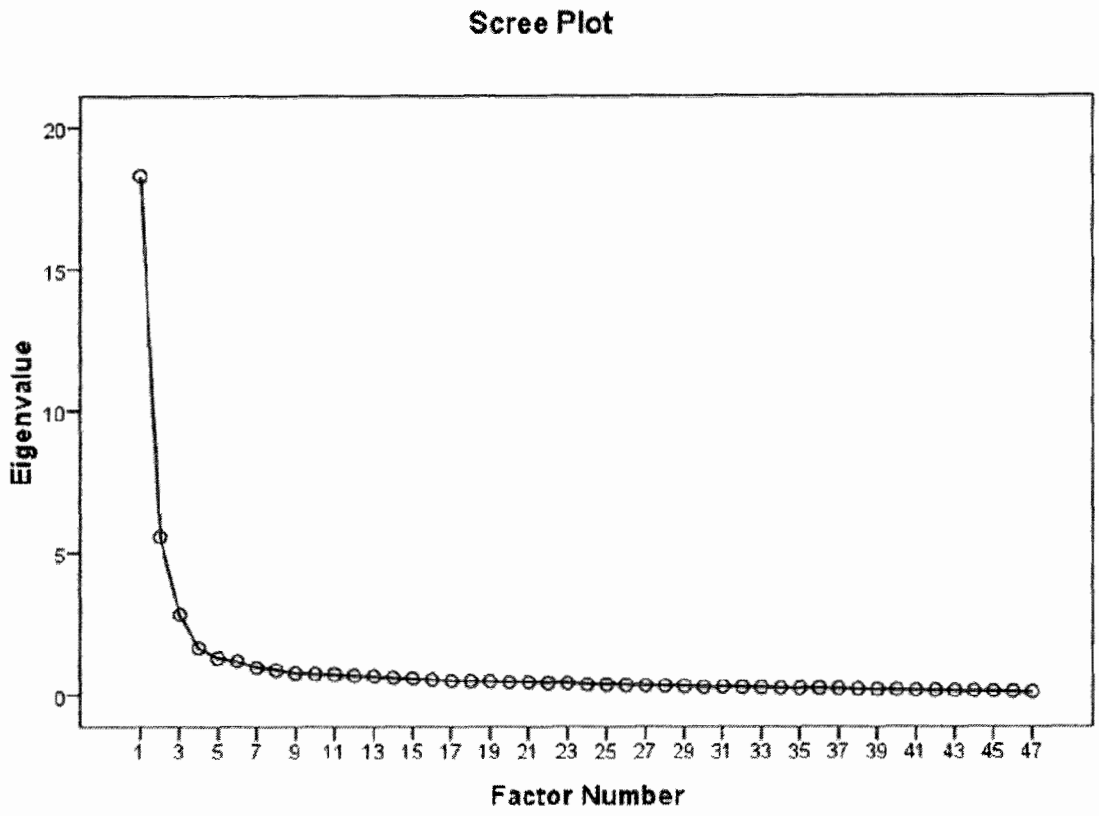

FIGURE 1. Cattell's scree plot for the Modified Environmental Justice Advocacy Scale.

TABLE 1. Comparison of Eigenvalues in Study 2 Sample With Eigenvalues From Parallel Analysis

Exploratory Factor Analysis		Parallel Analysis	
Factor	Initial Eigenvalues	Means	95th %
1	**18.29**	1.87	**1.96**
2	**5.56**	1.78	**1.85**
3	**2.83**	1.71	**1.76**
4	1.65	1.65	1.70
5	1.29	1.59	1.64
6	1.19	1.54	1.59

Note. The three factors suggested by the Parallel Analysis are in boldface.

fourth factor. Thus, Eigenvalues of the current sample and random data suggested considering a three- and four-factor solution.

I also examined the partial factor loadings due to their ease in interpretability when conducting an oblique rotation. The factor loadings are listed in Table 2.

I considered retaining items with factor loadings of |.35| and above (Stevens, 2002). All 47 items had factor loadings above |.35|. However, two of the six factors did not meet the minimum criteria regarding factor loadings above |.35|. The four factors with loadings |.35| included at least five items per factor, thus meeting the criteria outlined by Stevens (2002).

In the three-factor solution all 47 items had factor loadings of |.35| and above. Results are listed in Table 3.

In the three-factor solution, no items had cross-loadings on multiple factors. These results indicated retaining all 47 items. The items loaded as expected onto Factor 1 (17 items), Factor 2 (13 items), and Factor 3 (17 items). The three-factor solution accounted for 53.87% of the variance in EJAS scores after extraction. The variance accounted for by individual Factors 1 through 3 was 38.00%, 10.80%, and 5.07%, respectively. Factor 1 (17 items), labeled "Skills," relates to mental health professionals' skills in addressing environmental injustice in mental health and community settings. Factor 2 (13 items) labeled "Attitudes," relates to mental health professionals' attitudes about the relevance of environmental justice issues for their profession. Factor 3 (17 items), labeled "Knowledge," relates to knowledge about

TABLE 2. Factor Loadings for Exploratory Factor Analysis With Oblique Rotation of the Environmental Justice Advocacy Scales

	Factor					
EJAS item	1	2	3	4	5	6
1	-0.01	**0.66**	-0.25	-0.14	0.06	0.06
2	-0.01	**0.69**	-0.07	-0.06	0.16	0.13
3	0.05	**0.78**	-0.08	-0.06	0.13	-0.06
4	-0.04	**0.57**	0.03	0.08	-0.11	-0.10
5	-0.02	**0.72**	-0.12	0.05	0.06	0.17
6	0.06	**0.65**	-0.02	-0.08	-0.16	-0.06
7	-0.05	**0.65**	0.05	0.10	0.17	0.32
8	0.09	**0.67**	-0.04	0.02	0.15	-0.06
9	0.00	**0.73**	0.03	0.09	-0.12	-0.17
10	0.01	**0.68**	-0.05	0.02	0.05	0.24
11	0.00	**0.68**	-0.02	0.09	-0.12	-0.13
12	0.07	**0.56**	0.07	0.04	**-0.35**	-0.10
13	0.14	**0.60**	0.08	0.07	**-0.35**	-0.25
14	0.12	0.02	**-0.63**	0.08	0.18	-0.10
15	0.15	0.09	**-0.61**	0.07	-0.03	-0.02
16	0.08	0.04	**-0.71**	0.11	0.00	-0.10
17	0.02	0.03	**-0.69**	0.22	-0.02	-0.18
18	0.09	0.14	**-0.59**	0.14	-0.09	0.01
19	0.13	0.06	**-0.65**	0.07	0.04	0.14
20	0.08	0.18	**-0.58**	0.07	0.04	0.09
21	0.00	0.09	**-0.59**	0.25	0.02	0.01
22	0.04	-0.04	**-0.64**	-0.03	-0.06	0.13
23	0.13	0.06	-0.27	**0.41**	-0.12	0.22
24	0.11	0.01	-0.09	**0.55**	0.17	-0.13
25	0.10	0.09	-0.10	**0.56**	0.04	0.04
26	-0.02	0.01	-0.20	**0.74**	-0.02	-0.07
27	-0.04	0.06	**-0.38**	**0.61**	-0.03	0.00
28	0.09	0.06	-0.14	**0.74**	-0.01	0.05
29	0.17	-0.02	-0.15	**0.58**	-0.14	0.29
30	0.12	0.03	-0.29	**0.43**	-0.02	-0.10
31	**0.68**	0.06	0.19	0.19	0.34	-0.11
32	**0.70**	0.01	0.07	0.15	0.25	-0.22
33	**0.67**	0.05	0.09	0.23	0.32	-0.12

TABLE 2. (Continued)

	Factor					
EJAS item	**1**	2	3	4	5	6
34	**0.61**	0.01	-0.10	0.04	0.10	0.14
35	**0.61**	-0.05	-0.16	0.04	0.09	-0.13
36	**0.70**	-0.02	-0.25	-0.02	-0.04	-0.02
37	**0.79**	0.03	-0.12	-0.11	-0.02	-0.13
38	**0.80**	0.05	-0.13	-0.14	-0.02	-0.01
39	**0.63**	0.11	-0.17	0.09	-0.12	0.06
40	**0.80**	0.05	-0.16	-0.15	0.01	-0.10
41	**0.65**	-0.01	-0.13	0.02	-0.10	0.24
42	**0.62**	0.06	0.00	-0.03	-0.17	0.02
43	**0.73**	0.05	-0.01	0.04	-0.14	0.13
44	**0.62**	-0.08	-0.07	0.30	-0.11	0.08
45	**0.75**	-0.02	-0.04	0.07	0.09	-0.07
46	**0.66**	-0.09	0.16	**0.36**	-0.03	0.09
47	**0.64**	0.03	0.05	0.25	-0.10	0.11

Note. Factor loadings > .35 are in boldface.

environmental justice concerns that affect privileged and marginalized communities. Knowledge includes general environmental justice knowledge as well as knowledge specific to psychological and health-related concerns regarding environmental justice issues.

In addition to the three-factor solution, I also examined two four-factor solutions. The first four-factor solution consisted of all 47-items of the Modified EJAS. The results are listed in Table 4.

In the first four-factor solution all 47-items had loadings of |.35| and above. Only one item had a cross-loading at or above |.35| (item 46). I made the decision to include item 46 in the first analysis for two reasons: (a) the cross-loading value for the item was

TABLE 3. Three-Factor Solution Exploratory Factor Analysis With Oblique Rotation for the Environmental Justice Advocacy Scales

	Factor		
	1	2	3
EJAS item	Skills	Attitudes	Knowledge
1	-0.09	**0.68**	-0.15
24	-0.06	**0.66**	-0.07
3	0.06	**0.77**	0.01
4	-0.01	**0.59**	0.02
5	-0.09	**0.69**	-0.22
6	0.04	**0.71**	0.08
7	-0.11	**0.56**	-0.15
8	0.12	**0.64**	-0.02
9	0.06	**0.76**	0.04
10	-0.07	**0.64**	-0.16
11	0.04	**0.71**	-0.03
12	0.07	**0.62**	0.08
13	0.19	**0.66**	0.13
14	0.11	0.02	**-0.61**
15	0.07	0.12	**-0.63**
16	0.03	0.07	**-0.73**
17	0.02	0.05	**-0.75**
18	0.00	0.16	**-0.68**
19	0.00	0.06	**-0.73**
20	-0.03	0.18	**-0.65**
21	-0.05	0.07	**-0.78**
22	-0.11	0.01	**-0.65**
23	0.06	0.02	**-0.66**
24	0.25	-0.09	**-0.43**
25	0.17	-0.01	**-0.53**
26	0.11	-0.08	**-0.70**
27	0.00	-0.01	**-0.82**
28	0.18	-0.05	**-0.70**
29	0.13	-0.09	**-0.69**
30	0.18	-0.01	**-0.56**
31	**0.81**	-0.02	0.10
32	**0.85**	-0.03	0.07
33	**0.80**	-0.03	-0.02

TABLE 3. (Continued)

	Factor		
	1	2	3
EJAS item	Skills	Attitudes	Knowledge
34	**0.57**	0.00	-0.17
35	**0.65**	-0.04	-0.11
36	**0.67**	0.02	-0.19
37	**0.80**	0.09	0.05
38	**0.77**	0.10	0.01
39	**0.58**	0.14	-0.23
40	**0.79**	0.11	0.03
41	**0.54**	0.02	-0.22
42	**0.59**	0.11	0.04
43	**0.67**	0.08	-0.07
44	**0.62**	-0.09	-0.31
45	**0.81**	-0.02	-0.03
46	**0.71**	-0.14	-0.13
47	**0.64**	0.02	-0.17

Note. Factor loadings > .35 are in boldface.

precisely at the cutoff point (.35), and (b) conducting a four-factor solution with the same 47 items as in the three-factor solution allowed for direct comparison of the two models in Study 3. The four-factor solution with all 47 items accounted for 56.69% of the variance in EJAS scores after extraction. The variance accounted for by individual Factors 1 through 4 was 38.07%, 10.82%, 5.15%, and 2.65%, respectively. Factor 1 (17 items), labeled "Skills," relates to mental health professionals' skills in addressing environmental injustice in mental health and community settings. Factor 2 (13 items) labeled "Attitudes," relates to mental health professionals' attitudes about the relevance of environmental justice issues for their profession. Factor 3 (nine items), labeled

TABLE 4. Four-Factor Solution Exploratory Factor Analysis With Oblique Rotation for the Environmental Justice Advocacy Scales

	Factor			
	1	2	3	4
EJAS item	Skills	Attitudes	Knowledge: GEJ	Knowledge: PPEJ
1	-0.03	**0.65**	-0.26	-0.14
2	-0.04	**0.65**	-0.11	-0.06
3	0.07	**0.76**	-0.05	-0.08
4	-0.04	**0.61**	0.08	0.05
5	-0.07	**0.70**	-0.16	0.06
6	0.04	**0.70**	0.01	-0.10
7	-0.12	**0.58**	-0.05	0.11
8	0.11	**0.65**	-0.01	0.00
9	0.02	**0.78**	0.10	0.05
10	-0.06	**0.65**	-0.12	0.04
11	0.01	**0.73**	0.03	0.06
12	0.03	**0.64**	0.10	0.01
13	0.15	**0.68**	0.15	0.02
14	0.21	0.00	**-0.54**	0.11
15	0.18	0.10	**-0.57**	0.10
16	0.14	0.05	**-0.63**	0.14
17	0.10	0.06	**-0.57**	0.24
18	0.09	0.16	**-0.56**	0.17
19	0.12	0.04	**-0.66**	0.12
20	0.08	0.16	**-0.58**	0.11
21	0.03	0.09	**-0.55**	0.29
22	0.02	-0.04	**-0.65**	0.02
23	0.06	0.08	-0.30	**0.45**
24	0.18	0.00	-0.01	**0.54**
25	0.10	0.09	-0.07	**0.59**
26	0.01	0.04	-0.10	**0.76**
27	-0.03	0.08	-0.31	**0.65**
28	0.08	0.07	-0.09	**0.77**
29	0.08	0.00	-0.20	**0.61**
30	0.16	0.05	-0.21	**0.44**
31	**0.74**	0.00	0.21	0.15
32	**0.80**	-0.02	0.13	0.10

TABLE 4. (Continued)

	Factor			
	1	2	3	4
EJAS item	Skills	Attitudes	Knowledge: GEJ	Knowledge: PPEJ
33	**0.74**	-0.01	0.12	0.20
34	**0.59**	-0.02	-0.14	0.05
35	**0.67**	-0.05	-0.11	0.02
36	**0.72**	-0.01	-0.23	-0.02
37	**0.84**	0.05	-0.08	-0.14
38	**0.82**	0.05	-0.13	-0.15
39	**0.60**	0.13	-0.17	0.09
40	**0.85**	0.05	-0.13	-0.18
41	**0.57**	0.00	-0.20	0.05
42	**0.59**	0.09	-0.01	-0.04
43	**0.67**	0.07	-0.05	0.05
44	**0.59**	-0.05	-0.07	0.31
45	**0.80**	-0.03	-0.01	0.05
46	**0.63**	-0.08	0.14	**0.35**
47	**0.59**	0.05	0.03	0.25

Note. Knowledge: GEJ=Knowledge: General Environmental Justice; Knowledge: PPEJ=Knowledge: Psychological and Physical Health Environmental Justice; Factor loadings > .35 are in boldface.

"Knowledge-General Environmental Justice," relates to general foundational knowledge about environmental justice concerns that affect privileged and marginalized communities. Factor 4 (eight items), labeled "Knowledge-Psychological and Physical Health Environmental Justice," relates to specific psychological and physical health knowledge regarding environmental justice issues.

In the second four-factor solution, item 46 was deleted from the measure due to the cross-loading of .35 on Factors 1 and 4. After deletion of this item, I reran a 4 factor EFA with the remaining 46 items. The four-factor solution accounted for 56.55% of the

variance in EJAS scores after extraction. The variance accounted for by individual Factors 1 through 4 was 37.96%, 10.75%, 5.21%, and 2.62%, respectively. The factors were labeled the same as the 47-item four-factor model with one less skill item due to the removal of item 46.

Based on the results of the exploratory factor analyses, results seemed to suggest the three-factor model provided the most parsimonious and theoretically justified model for the data. Item means and standard deviations were calculated for the current sample. Results for the three-factor solution are presented in Table 5.

Internal Consistency

To examine internal consistency of the EJAS, I calculated Cronbach's alpha coefficient for the EJAS Full Scale and EJAS Subscales. The reliability coefficient for the three-factor 47-item EJAS was .96. The reliability coefficients for the three subscales were as follows: .96 for Skills (17 items), .92 for Attitudes (13 items), and .95 for Knowledge (17 items). These results suggest excellent reliability in the modified version of the measure.

The intercorrelations of the subscales were calculated. The results for the three-factor EJAS are listed in Table 6.

The results of the subscale correlations indicated there was a low correlation between attitudes regarding the relevance of environmental justice in the mental health professions and perceived skills related to environmental justice advocacy. There was

TABLE 5. EJAS Items, Factor Loadings of Exploratory Factor Analysis, Item Means, and Standard Deviations

	Item	Factor loading	*M*	*SD*
	Participants ($N = 294$)			
Factor 1: Skills (17 items)			4.04	0.96
31	I have the basic skills to provide outreach and/or crisis counseling services to victims of environmental contamination.	0.81	3.99	1.26
32	I have the basic skills to develop programs that address the mental health needs of communities experiencing environmental injustice.	0.85	3.64	1.29
33	I have the basic skills to assess the mental health needs of communities exposed to environmental contamination.	0.80	3.92	1.24
34	I do NOT have the basic skills to collaborate on an interdisciplinary team and conduct environmental justice research.	0.57	3.86	1.41
35	I have the basic skills to facilitate community discussions in response to environmental injustice.	0.65	4.04	1.26
36	I have the basic skills to educate community OR school groups about environmental justice issues.	0.67	3.83	1.27
37	I have the basic skills to establish collaborative relationships between environmental and social justice leaders in my community.	0.80	3.92	1.29
38	I have the basic skills to engage in multiple roles (e.g., consultant, educator, counselor) to address environmental injustice.	0.77	4.03	1.26
39	I have the basic skills to provide information to clients about how the environment may contribute to their presenting problems.	0.58	4.30	1.26
40	I have the basic skills to implement advocacy strategies (e.g., community education, community organizing) that address environmental justice issues.	0.79	4.07	1.23
41	I do NOT have the basic skills to participate in discussions about environmental justice.	0.54	4.32	1.26
42	I have the basic skills to utilize community resources to obtain accurate information regarding environmental hazards.	0.59	4.54	1.15

TABLE 5. (Continued)

	Item	Factor loading	*M*	*SD*
43	I do NOT have the basic skills to educate communities about the psychological consequences of exposure to environmental contaminants.	0.67	3.92	1.31
44	I have the basic skills to educate my clients about psychological problems that may arise due to exposure to toxic substances.	0.62	4.07	1.21
45	I have the basic skills to work with community groups to help them preserve cultural traditions that may be negatively impacted after exposure to environmental hazards.	0.81	3.83	1.22
46	I have the basic skills to identify psychological problems that emerge due to exposure to environmental contaminants .	0.71	4.05	1.21
47	I have the basic skills to help clients identify environmental conditions that may contribute to chronic stress.	0.64	4.39	1.12
Factor 2: Attitudes (13 items)			5.09	0.64
1	I believe it is important for social justice organizations to address environmental injustice.	0.68	5.25	0.76
2	I believe it is NOT appropriate for mental health professionals to advocate for the public's right to know about risks associated with environmental policies.	0.66	4.93	1.00
3	I believe it is important for mental health professions to influence environmental justice legislation.	0.77	4.66	1.03
4	I believe it is important for mental health professionals to teach clients skills to reduce their stress associated with hazardous environmental conditions.	0.59	5.18	0.89
5	I believe that environmental justice research is NOT relevant to mental health professionals.	0.69	4.88	1.06
6	I believe it is important for mental health professionals to develop programs that address the psychological needs of communities experiencing environmental injustice.	0.71	5.20	0.77
7	I believe that racial and/or socioeconomic differences regarding rates of exposure to environmental hazards is NOT relevant to the mental health professions.	0.56	5.21	0.97

TABLE 5. (Continued)

	Item	Factor loading	*M*	*SD*
8	I believe it is important for mental health professionals to understand the circumstances that brought about the U.S. environmental justice movement.	0.64	4.67	1.00
9	I believe that it is important for mental health professionals to know how to access accurate information regarding environmental hazards.	0.76	5.08	0.86
10	I believe that information about ethnic differences regarding exposure to environmental hazards is NOT relevant to mental health professionals.	0.64	5.18	1.00
11	I believe it is important for mental health professionals to be informed about physical health problems associated with exposure to environmental hazards.	0.71	5.27	0.75
12	I believe it is important for mental health professionals to be informed about the psychological ramifications of relocating a community due to environmental contamination.	0.62	5.51	0.62
13	I believe it is important for mental health professionals to educate community leaders about the psychological consequences of environmental contaminants.	0.66	5.18	0.84
Factor 3: Knowledge (17 items)			3.94	0.96
14	I can describe external barriers (e.g., specific institutional policies) that exacerbate environmental injustice for communities of color.	0.61	3.73	1.37
15	I can describe specific incidents of environmental contamination that have negatively impacted the health of communities.	0.63	4.28	1.29
16	I can describe some of the unique concerns faced by specific ethnic groups in relation to environmental issues.	0.73	4.09	1.33
17	I can describe the general demographic characteristics of the most common victims of environmental hazards.	0.75	3.96	1.33
18	I can describe the meaning of the term environmental justice.	0.68	4.45	1.08

TABLE 5. (Continued)

	Item	Factor loading	*M*	*SD*
19	I CANNOT describe the inequities experienced by specific groups (e.g., racial/ethnic minorities, individuals experiencing economic disadvantage) related to the enforcement of environmental policies.	0.73	4.02	1.34
20	I can describe the meaning of the term environmental racism.	0.65	4.27	1.12
21	I can describe the nature of inequities involved in locating toxic facilities in communities.	0.78	3.98	1.37
22	Prior to completing this survey, I could NOT describe the term environmental justice.	0.65	3.58	1.52
23	I CANNOT describe how the physical health effects associated with exposure to hazardous waste contribute to psychological problems.	0.66	4.15	1.30
24	I can describe how people transition through psychological stages once they become aware of their exposure to environmental contaminants.	0.44	3.12	1.31
25	I can describe how social support reduces some of the negative psychological consequences (e.g., stress) associated with exposure to toxins.	0.53	4.21	1.13
26	I can describe the differences in prevalence of chronic stress for people who live near a hazardous waste facility in comparison to people who do not live near a hazardous waste facility.	0.70	3.68	1.32
27	I can describe how differential exposure to environmental pollution creates health disparities among varying ethnic groups.	0.82	3.84	1.39
28	I can describe how common psychological reactions (e.g., fear, uncertainty, and a loss of control) emerge after exposure to environmental contaminants.	0.70	4.01	1.29
29	I CANNOT describe how exposure to toxic substances increases the incidence of psychological problems.	0.69	3.93	1.33
30	I can describe how environmental pollution impacts a group's ability to express itself in culturally congruent ways (e.g., dietary habits, hunting and agricultural practices, traditional economies).	0.56	3.77	1.30

TABLE 6. Intercorrelations Between Subscales for the Three-Factor Solution

Factor	Skills	Attitudes	Knowledge
Skills	1.00		
Attitudes	0.24	1.00	
Knowledge	0.63	0.39	1.00

Note. All correlations significant at $p < .01$.

a high correlation between perceived knowledge about environmental justice issues and perceived skills. Additionally, the results indicated there was a moderate correlation between perceived knowledge and attitudes regarding environmental justice issues.

Concurrent and Discriminant Validity and Socially Desirable Responding

Concurrent Validity

To explore the concurrent validity of the EJAS, I compared EJAS Full Scale and Subscale scores to the ECOSCALE Full Scale and relevant subscales. The reliability for the ECOSCALE Full Scale with the current sample was .79. The seven subscale reliability coefficients were as follows: Opinions and Beliefs ($\alpha = .31$), Awareness ($\alpha = .51$), Willing to Act ($\alpha = .35$), Attitude ($\alpha = .42$), Action Taken ($\alpha = .58$), Ability to Act ($\alpha = .31$), and Knowledge ($\alpha = .33$). Due to the low levels of reliability for the original measure, the ECOSCALE was further analyzed in order to increase scale reliability and validity of scores. Initially, I conducted an EFA on the entire ECOSCALE. The results of the EFA failed to converge on a factor solution due to low average interitem correlations (average interitem correlation = .12). Therefore, I examined the scale

reliability and identified results that suggested improved reliability if the item was removed. The results suggested that by removing item 3 the scale reliability would improve from .79 to .80. After removing item 3 and rerunning the reliability analysis, the results indicated that removal of additional items would not change the scale reliability.

After removing item 3, I conducted an exploratory factor analysis for the ECOSCALE with the current sample. The sample size of 294 exceeded the minimum recommended ratio of 5 participants per 1 item suggested in the literature (Stevens, 2002). There were no missing values due to the imputation procedure mentioned earlier. I conducted an exploratory factor analysis using principal-axis factoring, with a direct oblimin rotation. Oblique rotation was selected due to the likelihood that the emergent factors would be correlated because of the relationships outlined in the literature between attitudes, knowledge, and behaviors (Stone et al., 1995). The following criteria were utilized to determine the underlying factor structure: (a) Catell's scree test; (b) Kaiser's criterion with Eigenvalues > 1; and (c) partial factor loadings above |.35|, excluding cross-loadings on multiple factors. The KMO measure of sampling adequacy was .78, and Bartlett's test of sphericity was statistically significant ($p < .001$). The results of the screen plot suggested a two- or three-factor solution and are shown in Figure 2.

There were 10 factors with eigenvalues above 1.0, accounting for 38.45% of the variance. Initially, I examined two- and three-factor solutions. The results of the two-factor solution are listed in Table 7.

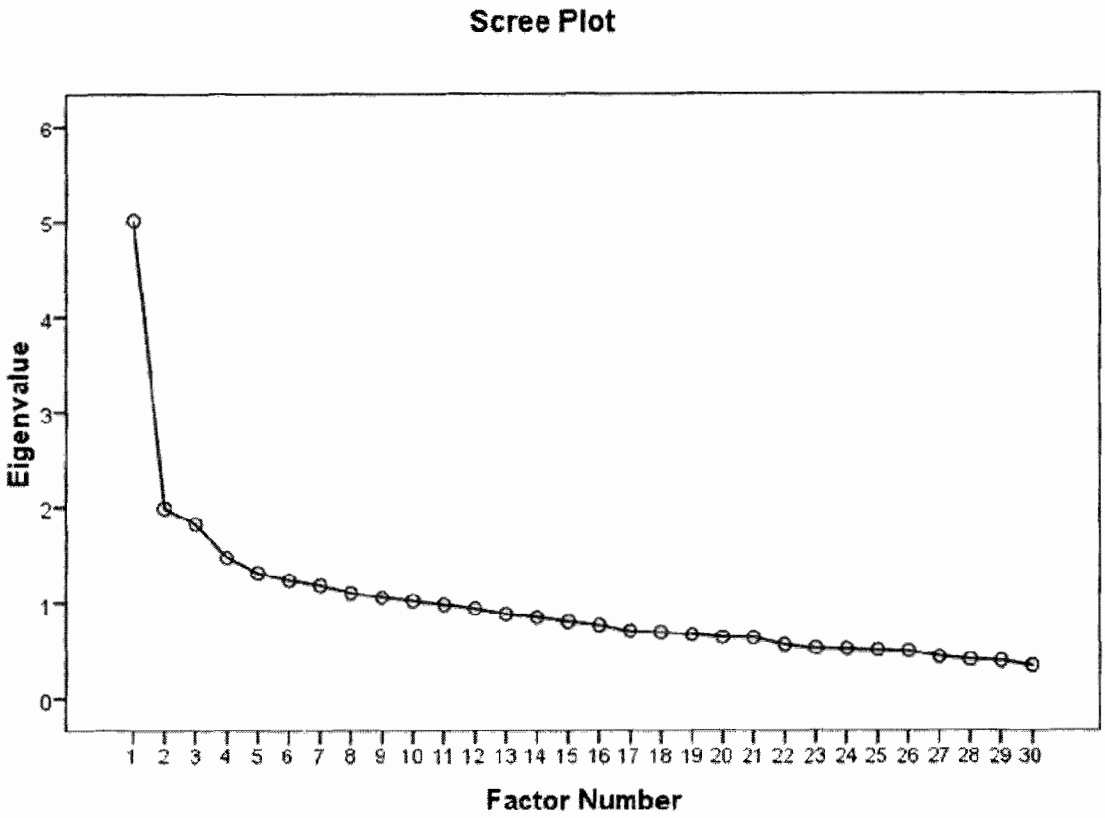

FIGURE 2. Cattel's scree plot for the ECOSCALE.

In the two-factor solution, 18 items had values above |.35|. No items had cross-loadings on multiple factors. The two-factor solution accounted for 18.22% of the variance in ECOSCALE scores after extraction. The variance accounted for by the individual Factors 1 and 2 was 14.13% and 4.09%, respectively. Factor 1 (11 items) labeled "Attitudes and Knowledge" relates to attitudes and knowledge about human and economic impacts on the environment. Factor 2 (7 items), labeled "Behaviors," relates to common behaviors that have an environmental impact.

TABLE 7. Factor Loadings for Exploratory Factor Analysis With Oblique Rotation of the Two-Factor ECOSCALE

	Factor	
ECO item	1	2
1	0.24	0.00
2	0.30	-0.07
4	**0.52**	-0.07
5	**0.39**	-0.19
6	**0.36**	0.15
7	**0.45**	0.02
8	**0.39**	-0.12
9	**0.38**	0.04
10	**0.37**	-0.10
11	-0.14	**-0.56**
12	0.02	**-0.59**
13	**0.38**	-0.09
14	0.25	0.06
15	0.19	-0.20
16	0.24	-0.04
17	0.34	-0.12
18	0.28	-0.11
19	0.00	**-0.55**
20	0.06	**-0.37**
21	0.01	**-0.40**
22	**0.48**	-0.05
23	0.20	-0.21
24	0.12	-0.13
25	0.01	-0.32
26	0.31	**-0.45**
27	0.33	-0.08
28	0.10	-0.23
29	**0.59**	0.13
30	**0.50**	0.03
31	0.01	**-0.54**

Note. Factor loadings > .35 are in boldface.

I also conducted a three-factor EFA. The results suggested the same items for Factors 1 and 2. Only two items had values above |.35| on Factor 3. Since the third factor did not meet the five-items-per-factor criteria outlined by Stevens (2002), the two-factor model provided the most parsimonious model for the data. ECOSCALE items, Factor Loadings of Exploratory Factor Analysis, Means, and Standard Deviations are presented in Table 8.

The intercorrelations of the Modified ECOSCALE subscales were calculated. The correlation between the "Attitudes and Knowledge" and "Behaviors" subscales of the Modified ECOSCALE was .41. The results suggest there is a moderate correlation between participants' attitudes and knowledge and environmentally responsible behaviors.

Reliability estimates were conducted for the Modified ECOSCALE. The estimates are as follows: Full Scale (.76), Attitudes and Knowledge Subscale (.70), and Behaviors Subscale (.69). Next, the two-factor ECOSCALE was utilized to examine concurrent validity for the EJAS. Significant correlations were found between the EJAS Full Scale and the Modified ECOSCALE Full Scale ($r = .38, p < .01$). It was expected that the EJAS would have positive, moderate-high correlations with the ECOSCALE. The correlation was moderate between the two instruments. Significant correlations were also found between the EJAS Attitudes Subscale and Modified ECOSCALE Attitudes and Knowledge Subscale ($r = .39, p < .01$) and between the EJAS Knowledge Subscale and Modified ECOSCALE Attitudes and Knowledge Subscales ($r = .44, p < .01$). It was hypothesized that the correlations would also be positive, moderate-high

TABLE 8. ECOSCALE Items, Factor Loadings of Exploratory Factor Analysis, Item Means, and Standard Deviations

	Item	Factor Loading	*M*	*SD*
	Participants (N = 294)			
Factor 1: Attitudes and Knowledge (11 items)			4.44	0.57
4	Excess packaging is one source of pollution that could be avoided if manufacturers were more environmentally aware.	0.52	4.48	0.84
5	Economic growth should take precedence over environmental considerations.	0.39	4.25	0.92
6	The earth's resources are infinite and should be used to the fullest to increase the human standard of living.	0.36	4.53	1.08
7	The amount of energy I use does not affect the environment to any significant degree.	0.45	4.34	0.89
8	This country needs more restrictions on residential development (construction of new mall on farmland, new subdivisions, etc.).	0.39	3.80	1.22
9	If I were a hunter or fisherman, I would kill or catch more if there were no limits.	0.38	4.13	1.13
10	In order to save energy, pools should not be heated during winter.	0.37	3.48	1.14
13	Whenever no one is looking I litter.	0.38	4.73	0.63
22	The earth is so large that people have little effect on the overall environment.	0.48	4.71	0.68
29	Acid rain only affects Canada.	0.59	4.82	0.54
30	It is no use worrying about environmental issues: I can't do anything about them anyway.	0.50	4.77	0.62
Factor 1: Behaviors (7 items)			3.02	0.71
11	I attend environmental /conservation group meetings (Green Peace, Ducks Unlimited, etc.).	0.56	1.50	0.90
12	I have started/joined consumer boycott programs aimed at companies that produce excess pollution.	0.59	1.90	1.21
19	I turn in polluters when I see them dumping toxic liquids.	0.55	2.92	1.35
20	I have my engine tuned to help stop unwanted air pollution.	0.37	3.59	1.29

TABLE 8. (Continued)

	Item	Factor Loading	*M*	*SD*
21	I have my oil changed at installations which recycle oil.	0.40	3.70	1.27
26	I vote for proenvironmental politicians.	0.45	3.88	0.99
31	I would describe myself as environmentally responsible.	0.54	3.64	0.85

correlations. The correlations were both moderate. Finally, significant correlations were found between the EJAS Skills Subscale and Modified ECOSCALE Behaviors Subscale ($r = .35, p < .01$). It was hypothesized that the correlations would be positive, moderate-high correlations. The correlation was moderate.

The second analysis conducted to examine concurrent validity focused on the relationship between the EJAS and questions focused on mental health professionals' attitudes regarding the relevance of client and political advocacy for the mental health professions. Significant correlations were found between the EJAS Full Scale and participants' beliefs about client advocacy ($r = .28, p < .01$). It was expected that Pearson product-moment correlation coefficients between the EJAS and participants' beliefs about client advocacy would be in the moderate range. Significant correlations were also found between the EJAS Full Scale and participants' beliefs about client advocacy ($r = .32, p < .01$). It was hypothesized that correlation coefficients between the EJAS and participants' beliefs about client advocacy would also be in the moderate range, and results indicated low-moderate correlations.

Discriminant Validity

The Rosenberg Self-Esteem Scale was selected to establish discriminant validity. The reliability coefficient for the current sample was adequate ($\alpha = .88$). Since the EJAS assesses for environmental justice advocacy attitudes, knowledge, and skills, a measurement of self-esteem would likely not be highly correlated with the EJAS. Significant correlations were found between the EJAS Full Scale and the Rosenberg Self-Esteem Scale ($r = .19, p < .01$). It was expected that Pearson product-moment correlations between the RSE and the EJAS would result in positive, low correlations in the range of .05-.15. Thus, the correlation was slightly stronger than expected.

Effects of Social Desirability

The M-C SDS-Form C was selected to assess for socially desirable responding. The reliability coefficient for the current sample was similar to the coefficient alpha reported in the original sample ($\alpha = .76$). Significant correlations were found between the M-C SDS-Form C and the EJAS Full Scale ($r = .16, p < .01$), EJAS Attitudes Subscale ($r = .16, p < .01$), and EJAS Knowledge Subscale ($r = .16, p < .01$). Nonsignificant correlations were found between the M-C SDS-Form C and the EJAS Skills Subscale ($r = .10, p < .05$). It was hypothesized that nonsignificant correlations would be found between the EJAS and the M-C SDS-Form C.

Means, standard deviations, and correlations among the EJAS, Modified ECOSCALE, RSE, and the M-C SDS-Form C were calculated. The results can be found in Table 9.

Results for Study 3: Confirmatory Factor Analysis of the Environmental Justice Advocacy Scale

As mentioned previously, a large data set was collected and analyzed for Studies 2 and 3. The procedures for identifying the extent and type of missing data and imputing data using the maximum likelihood method are described in Study 2. The data set for Study 3 consisted of $n = 295$ and was utilized to conduct the Confirmatory Factor Analysis (CFA).

After the data set was split in half, preliminary analysis was conducted to test for critical statistical assumptions underlying CFA. Descriptive statistics were analyzed to determine whether the data met the assumptions of multivariate normality, as well as linearity, and whether influential outliers were present (e.g., histograms, scatterplots, examination of restricted range; Tabachnik & Fidell, 2007). The data met the assumptions for normality and linearity. There were no constants present in the data. Due to the nature of the predetermined options for the online scoring scale, no outliers were present. Correlations between EJAS items were examined and no negative or perfect correlations were found.

To test the replicability of the factor structure, I conducted CFA using AMOS 16.0 (Arbuckle, 2007). Based on recommendations by Bollen and Long (1993),

TABLE 9. Means, Standard Deviations, Alphas, and Correlations Among Modified EJAS and Concurrent and Discriminant Validity and Social Desirability Measures

Variable	M	SD	alpha	EJAS Full	EJAS Attitudes	EJAS Knowledge	EJAS Skills
ECO Full Scale	3.81	0.52	0.76	**.38****	.40**	.35**	.25**
ECO Attitudes and Knowledge	4.44	0.57	0.70	.30**	**.39****	**.44****	.16**
ECO Behaviors	3.02	0.71	0.69	.48**	.43**	.44**	**.35****
ClAQ	5.38	0.85	---	**.28****	.35**	.25**	.20**
PAQ	4.81	1.16	---	**.32****	.44**	.31**	.19**
RSE	23.65	4.57	0.88	**.16****	.17**	.12*	.13*
M-C SDS-C	5.97	3.12	0.76	**.16****	**.16****	**.16****	**0.10**

Note. ECO = Modified ECOSCALE; ClAQ = Client Advocacy Question on Demographic Form; PAQ = Political Advocacy Question on Demographic Form; RSE = Rosenberg Self-esteem Scale; M-C SDS-C = Marlowe-Crowne Social Social Desirability Scale-Form C. Boldface type corresponds to hypotheses.

*$p < .05$. ** $p < .01$.

I used a competing model strategy and tested the three models that were discussed in Study 2. The first model was the hypothesized model that resulted from the EFA and consisted of 47 items measuring mental health professionals' attitudes, knowledge, and skills regarding environmental justice advocacy. Each measured variable was associated with one of the three first-order latent variables (Attitudes, Knowledge, and Skills) via a single path. I set the first measurement path for each latent variable to 1.0 so that a scale could be established for the remaining variables. Reliability estimates were conducted for the current sample. Coefficients for the hypothesized model were as follows: EJAS Full Scale (α = .96), Attitudes (α = .92), Knowledge (α = .94), and Skills (α = .96). The hypothesized model is presented in Figure 3.

The second model I tested is one of the alternate four-factor models discussed in Study 2. The model included all 47 items of the Modified EJAS and measured mental health professionals' attitudes, knowledge, and skills regarding environmental justice advocacy. Each measured variable was associated with one of the following four first-order latent variables: (a) Attitudes, (b) Knowledge-General Environmental Justice, (c) Knowledge-Psychological and Physical Health Environmental Justice, and (d) Skills. Reliability coefficients for the second model were as follows: EJAS Full Scale (α = .96), Attitudes (α = .92), Knowledge-General Environmental Justice (α = .90), Knowledge-Psychological and Physical Health Environmental Justice (α = .90), and Skills (α = .96). The 47-item four factor model is presented in Figure 4.

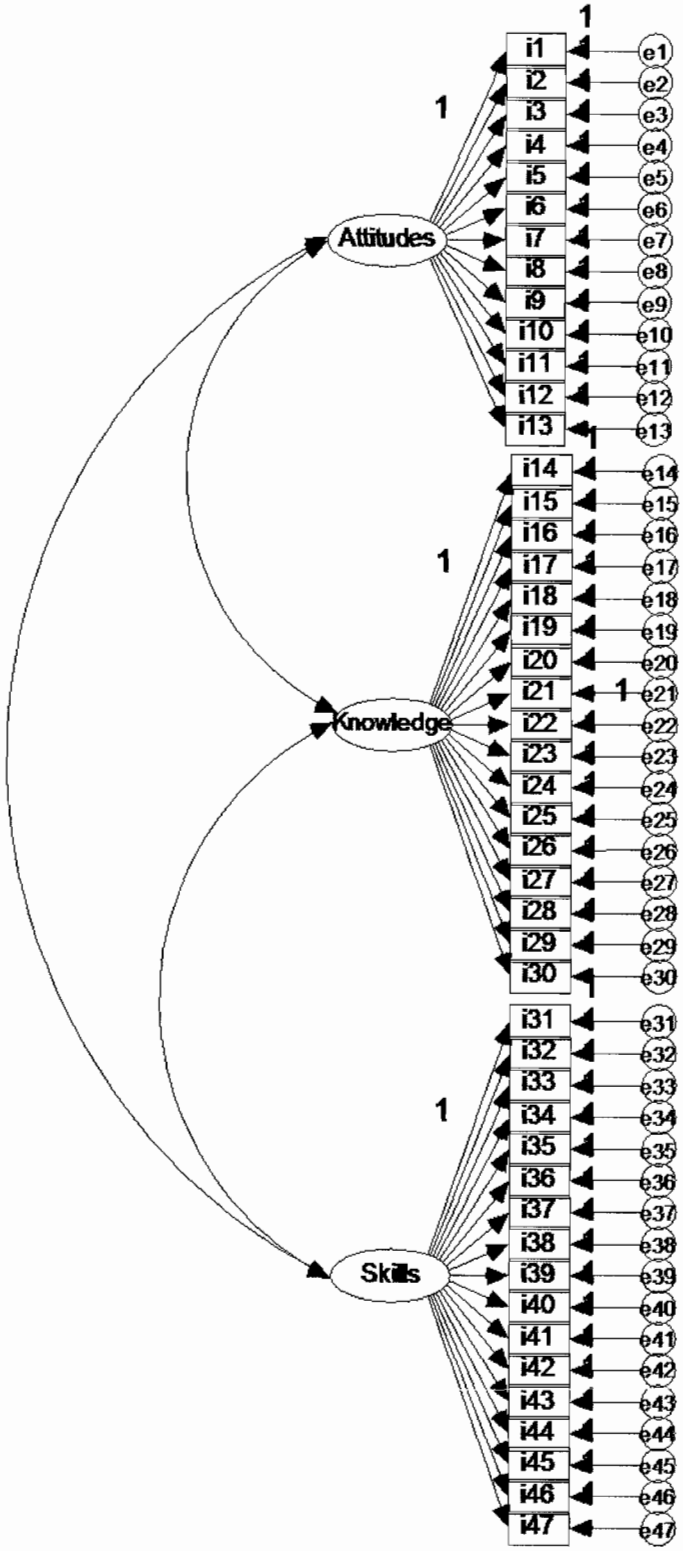

FIGURE 3. The 47-item three-factor model.

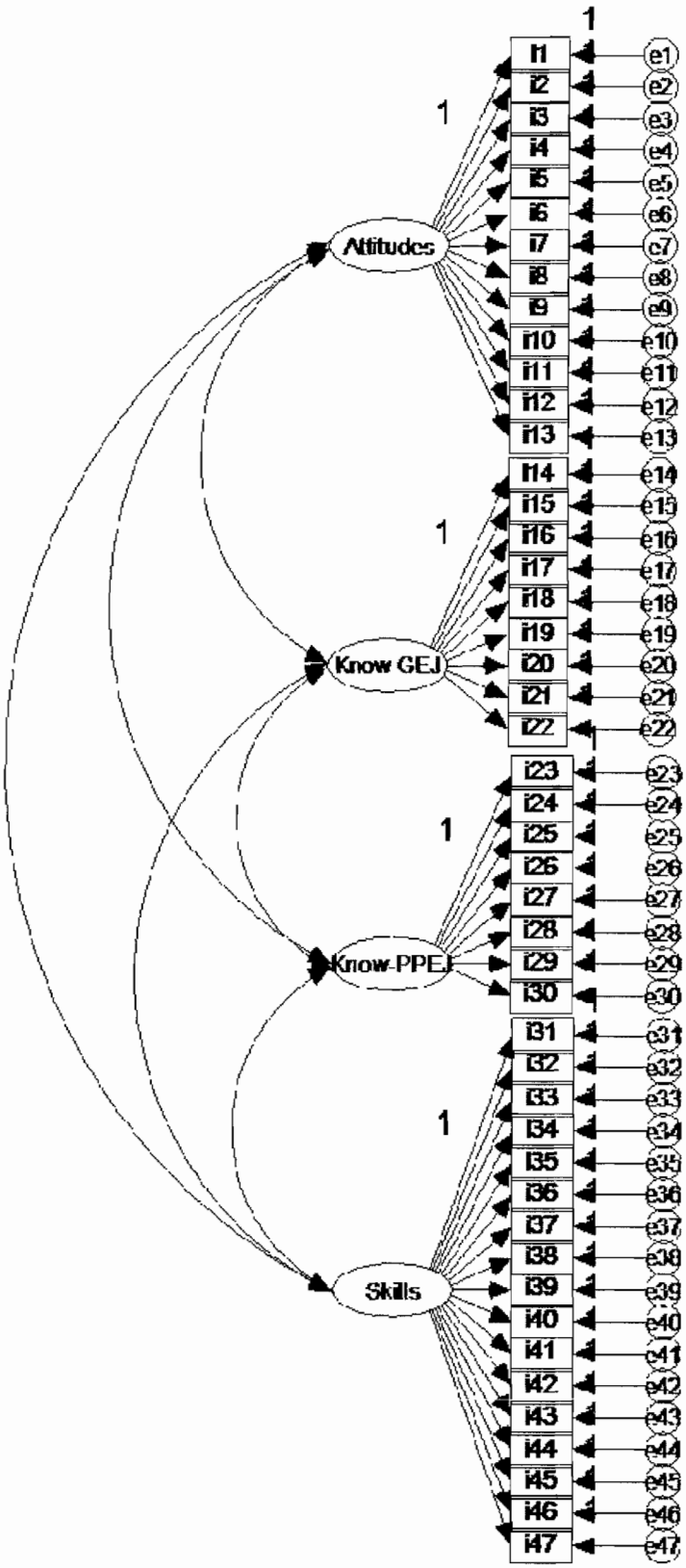

FIGURE 4. The 47-item four-factor model. Know-GEJ = Knowledge-General Environmental Justice; Know-PPEJ = Knowledge-Psychological and Physical Health Environmental Justice.

The third model I tested consisted of 46 items of the Modified EJAS. Again, each measured variable was associated with one of the four first-order latent variables (Attitudes, Knowledge-General Environmental Justice, Knowledge-Psychological and Physical Health, and Skills). The third model is the same as Figure 4 with item 46 removed. Reliability coefficients for the third model were as follows: EJAS Full Scale (α = .96), Attitudes (α = .92), Knowledge-General Environmental Justice (α = .90), Knowledge-Psychological and Physical Health Environmental Justice (α = .90), and Skills (α = .96).

Factor variances and covariances were freely estimated in all three models and residuals were not allowed to correlate. In order to determine goodness-of-fit, I followed Hu and Bentler's (1995) suggestion that multiple fit indices should be used in evaluating structural models. The following goodness-of-fit indices were utilized to evaluate model fit: χ^2 approximation of the discrepancy function, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA).

Unstandardized and standardized parameter estimates were examined for all three models. The values resulting from the hypothesized 47-item Three-Factor CFA (Figure 2) are presented in Table 10. All estimates were positive and statistically significantly different than zero, indicating that each variable is positively related to the latent construct with which it is associated (Kaplan, 2000).

TABLE 10. Parameter Estimates for the Hypothesized 47-Item Three-Factor Model

	Unstandardized			Standardized
	Estimate	*SE*	CR	Estimate
Attitudes				
i1	1.00			0.72
i2	1.28	0.11	11.44	0.69
i3	1.54	0.12	12.98	0.78
i4	1.03	0.11	8.99	0.54
i5	1.40	0.12	11.91	0.71
i6	0.98	0.09	11.15	0.67
i7	1.16	0.11	10.73	0.64
i8	1.41	0.12	12.14	0.73
i9	1.18	0.09	12.63	0.75
i10	1.24	0.12	10.67	0.64
i11	0.99	0.09	11.68	0.70
i12	0.78	0.07	10.80	0.65
i13	1.11	0.10	11.44	0.68
Knowledge				
i14	1.00			0.67
i15	0.90	0.08	10.77	0.69
i16	1.01	0.09	11.48	0.74
i17	1.05	0.09	11.58	0.74
i18	0.70	0.07	9.88	0.62
i19	1.02	0.09	11.25	0.72
i20	0.91	0.08	10.88	0.69
i21	1.03	0.09	11.19	0.72
i22	0.87	0.11	8.30	0.52
i23	0.98	0.09	10.74	0.68
i24	0.86	0.09	9.21	0.58
i25	0.76	0.08	9.58	0.60
i26	1.05	0.09	11.24	0.72
i27	1.10	0.09	11.78	0.76
i28	1.01	0.09	11.50	0.74
i29	1.11	0.09	11.86	0.77
i30	1.06	0.09	11.48	0.74

TABLE 10. (Continued)

	Unstandardized		Standardized	
	Estimate	*SE*	CR	Estimate
Skills				
i31	1.07	0.08	12.70	0.70
i32	1.23	0.09	14.32	0.78
i33	1.17	0.08	14.45	0.78
i34	1.20	0.10	12.52	0.69
i35	1.01	0.08	12.89	0.71
i36	1.29	0.08	15.79	0.84
i37	1.17	0.08	14.73	0.79
i38	1.28	0.08	15.47	0.83
i39	1.21	0.08	16.06	0.85
i40	1.22	0.08	14.95	0.80
i41	1.12	0.08	13.25	0.73
i42	0.77	0.08	9.77	0.55
i43	1.15	0.09	13.35	0.73
i44	1.21	0.08	15.62	0.83
i45	1.19	0.08	14.63	0.79
i46	1.20	0.08	15.04	0.81
i47	1.00			0.76

Note. *SE* = Standard Error; CR = Critical Ratio. All estimates significant at $p < .001$.

All estimates were found to be statistically significant. The critical ratios for all 47 Modified EJAS items were found to be above the recommended cutoff > +/- 1.96 (Byrne, 2001). Additionally, the Standard Errors do not appear to be excessively small or large. There were four paths below .60 that resulted in the smallest standardized parameter estimates, thus indicating the weakest relationships between a measured variable and a first-order latent construct in the model. The paths included item 4 to the latent construct of Attitudes with a value of .54, items 22 and 24 to the latent construct of Knowledge with values of .52 and .58, respectively, and item 42 to the latent

construct of Skills with a value of .55. The paths for the remaining variables fell within a range of .60 to .85. The paths with the largest standardized parameter estimates were between .80 to .85, indicating strong relationships. The strongest relationships were all within the latent construct of Skills.

The unstandardized and standardized parameter estimates resulting from the alternate four-factor models are presented in Table 11. All estimates were positive and statistically significantly different than zero, also indicating that each variable is positively related to the latent construct with which it is associated.

In both alternate models, all estimates were found to be statistically significant. The critical ratios for all items were also found to be above the recommended cutoff > +/- 1.96. Again, the Standard Errors did not appear to be excessively small or large. In the 47-item four-factor model there were three paths below .60 that resulted in the smallest standardized parameter estimates, thus indicating the weakest relationships between a measured variable and a first-order latent construct in the model. The paths included item 4 to the latent construct of Attitudes with a value of .54, item 22 to the latent construct of Knowledge-General EJ with a value of .51, and item 42 to the latent construct of Skills with a value of .55. The paths for the remaining variables fell within the range of .62 to .85. The paths with the largest standardized parameter estimates were between .80 to .85, indicating strong relationships. The strongest relationships were within the latent constructs of Knowledge (both General and Psychological and Physical Health Environmental Justice) and Skills.

TABLE 11. Parameter Estimates for the Alternate Four-Factor Models

	47-item four-factor model				46-item four-factor model			
	Unstandardized			Stand.	Unstandardized			Stand.
	Estimate	*SE*	CR	Estimate	Estimate	*SE*	CR	Estimate
Attitudes								
i1	1.00			0.72	1.00			0.72
i2	1.28	0.11	11.45	0.69	1.28	0.11	11.45	0.69
i3	1.54	0.12	12.99	0.78	1.54	0.12	12.99	0.78
i4	1.03	0.11	8.98	0.54	1.03	0.11	8.98	0.54
i5	1.40	0.12	11.91	0.71	1.40	0.12	11.91	0.71
i6	0.98	0.09	11.16	0.67	0.98	0.09	11.16	0.67
i7	1.16	0.11	10.74	0.64	1.16	0.11	10.74	0.64
i8	1.40	0.12	12.13	0.73	1.40	0.12	12.13	0.73
i9	1.18	0.09	12.63	0.75	1.18	0.09	12.63	0.75
i10	1.24	0.12	10.68	0.64	1.24	0.12	10.68	0.64
i11	0.99	0.08	11.69	0.70	0.99	0.08	11.69	0.70
i12	0.78	0.07	10.80	0.65	0.78	0.07	10.80	0.65
i13	1.11	0.10	11.45	0.69	1.11	0.10	11.45	0.69
Knowledge-General EJ								
i14	1.00			0.72	1.00			0.72
i15	0.88	0.07	11.87	0.72	0.88	0.07	11.87	0.72
i16	1.04	0.08	13.44	0.81	1.04	0.08	13.44	0.81
i17	1.07	0.08	13.48	0.81	1.07	0.08	13.48	0.81
i18	0.64	0.06	10.20	0.62	0.64	0.06	10.20	0.62
i19	1.00	0.08	12.59	0.76	1.00	0.08	12.59	0.76
i20	0.89	0.07	12.06	0.73	0.89	0.07	12.06	0.73
i21	0.98	0.08	12.11	0.73	0.98	0.08	12.11	0.73
i22	0.80	0.10	8.38	0.51	0.80	0.10	8.39	0.51
Knowledge-Psychological-Physical Health EJ								
i23	0.94	0.08	12.03	0.70	0.93	0.08	12.03	0.70
i24	0.89	0.08	10.93	0.64	0.89	0.08	10.93	0.64
i25	0.76	0.07	11.07	0.65	0.76	0.07	11.07	0.65
i26	1.05	0.08	13.45	0.77	1.05	0.08	13.46	0.77
i27	1.04	0.08	13.20	0.76	1.04	0.08	13.22	0.76
i28	1.04	0.07	14.19	0.81	1.04	0.07	14.19	0.81
i29	1.11	0.08	14.35	0.82	1.11	0.08	14.34	0.82
i30	1.00			0.75	1.00			0.75

TABLE 11. (Continued)

	47-item four-factor model				46-item four-factor model			
	Unstandardized		Stand.		Unstandardized		Stand.	
	Estimate	*SE*	CR	Estimate	Estimate	*SE*	CR	Estimate
Skills								
i31	1.07	0.08	12.73	0.70	1.11	0.09	12.41	0.71
i32	1.23	0.09	14.34	0.78	1.28	0.09	13.91	0.78
i33	1.17	0.08	14.46	0.78	1.21	0.09	13.88	0.78
i34	1.20	0.10	12.54	0.69	1.26	0.10	12.30	0.70
i35	1.01	0.08	12.89	0.71	1.05	0.08	12.62	0.72
i36	1.29	0.08	15.79	0.84	1.34	0.09	15.12	0.84
i37	1.17	0.08	14.73	0.79	1.23	0.09	14.35	0.81
i38	1.27	0.08	15.49	0.83	1.33	0.09	14.92	0.83
i39	1.21	0.08	16.08	0.85	1.25	0.08	15.25	0.85
i40	1.22	0.08	14.95	0.80	1.28	0.09	14.50	0.81
i41	1.12	0.08	13.25	0.73	1.16	0.09	12.84	0.73
i42	0.77	0.08	9.76	0.55	0.78	0.08	9.45	0.55
i43	1.15	0.09	13.35	0.73	1.19	0.09	12.87	0.73
i44	1.21	0.08	15.64	0.83	1.22	0.08	14.60	0.82
i45	1.18	0.08	14.64	0.79	1.21	0.09	13.85	0.78
i46	1.20	0.08	15.08	0.81	----	----	----	----
i47	1.00			0.77	1.00			0.74

Note. Stand. = Standardized Parameter Estimate; *SE* = Standard Error; CR = Critical Ratio; EJ = Environmental Justice.

*All estimates significant at $p < .001$

In the 46-item four-factor model the same three paths were below .60 as in the 47-item four-factor model. The paths for the remaining variables fell within the same range as the 47-item four-factor model (.62 to .85). The paths with the largest standardized parameter estimates were slightly higher and ranged from .81 to .85. The strongest relationships were similarly within the latent constructs of Knowledge (both General and Health-related Environmental Justice) and Skills.

Factor Correlations

Factor correlations were also examined. Correlation results are presented in Table 12.

TABLE 12. Estimated Correlations Between Factors by Model

	Estimate
Hypothesized 47-item three factor model	
A and K	0.50
K and S	0.64
A and S	0.29
Alternate 47-item four factor model	
A and K-GEJ	0.50
S and K-GEJ	0.56
S and K-PPEJ	0.64
A and K-PPEJ	0.45
A and S	0.29
K-GEJ and K-PPEJ	0.80
Alternate 46-item four factor model	
A and K-GEJ	0.50
S and K-GEJ	0.56
S and K-PPEJ	0.63
A and K-PPEJ	0.45
A and S	0.29
K-GEJ and K-PPEJ	0.80

Note. A = Attitudes; K-GEJ = Knowledge-General Environmental Justice; K-PPEJ = Knowledge Psychological and Physical Health Environmental Justice; S = Skills.

In all three models the correlation estimates were positive. In the hypothesized model, correlations ranged from small (r = .29) to moderate-high (r = .64). The strongest estimated correlation was between the Knowledge and Skills subscale. In both

of the alternate models, the correlations ranged from small ($r = .29$) to high ($r = .80$). The strongest relationship in both alternate models was between the two Knowledge areas (General Environmental Justice and Psychological and Physical Health Environmental Justice).

Goodness-of-Fit Indices

I utilized the following goodness-of-fit indices to evaluate model fit: χ^2 approximation of the discrepancy function, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). The results are reported in Table 13.

TABLE 13. Confirmatory Factor Analysis Goodness-of-Fit Summary

	Model		
Index	47-item three-factor	47-item four-factor	46-item four-factor
Chi-square	2854.03*	2627.88*	2429.39*
df	1031.00	1028.00	983.00
Chi-square/df	2.77	2.56	2.47
CFI	0.81	0.84	0.85
TLI	0.80	0.83	0.84
SRMR	0.06	0.06	0.06
RMSEA	0.08	0.07	0.07
RMSEA 90% CI	.074-.081	.069-.076	.067-.074

Note. $N = 295$. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; RMSEA 90% CI = RMSEA 90% Confidence Interval.

*$p < .05$.

A statistically significant χ^2 value indicates that there are significant differences between the sample and the fitted covariance matrices. The χ^2 statistic represented a better fit for all three models when compared to the null models. However, the obtained χ^2 value for the hypothesized 47-item Three-Factor, alternate 47-item Four-Factor, and alternate 46-item four-factor models were all statistically significant at $p < .05$. Hu and Bentler (1995) have reported that the χ^2 statistic is sensitive to sample size. Therefore, due to the size of my sample, it is not surprising that the χ^2 statistic was significant for the proposed models.

To evaluate the models further, I examined goodness-of-fit indices. Hu and Bentler (1995) identified the cutoff criteria for good model fit as follows: CFI and TLI values > .95, SRMR values < .06, RMSEA values < .06. The obtained values of the CFI and TLI for the three- and four-factor models were all below the recommended cutoff. The obtained values for the SRMR for all three models were just above the cutoff criteria for "good" fit. The obtained values of the RMSEA for all three models were above the cutoff criteria, thus indicating a less than optimal fit. According to the data, neither model appears to provide a superior fit. I also compared the 47-item Three- and Four-Factor nested models to determine if either model provided a better fit with the data. I calculated the probability that the χ^2 difference was statistically different than zero. The results indicated the difference ($\chi^2 = 226.15$ and $df = 3$) was statistically significant, suggesting that the 47-item four-factor model is an improvement over the 47-item three-factor model.

Since the 46 item four-factor model is a non-nested model when evaluated against the 47-item four-factor model, comparing the difference in χ^2 values is not recommended (Ho, 2006; Tabachnick & Fidell, 2007). In order to evaluate non-nested models, Cheung and Rensvold (2002) have suggested that a TLI and CFI value difference > .02 indicates an improved fit between models. As such, the results indicate the 46-item four-factor model is not an improvement over the 47-item four-factor model.

I also reviewed the standardized residuals to determine if there were residuals above the cutoff value of > 2.58 identified by Joreskog and Sorbom (1988). It is suggested that removal of items above the cutoff value may allow for improved model fit. In all three models, item 18 had the highest number of statistically significant instances above the cutoff for standardized residual values (eight instances; i.e., the comparison between the observed and model-based correlations). Because item 18 had the highest number of instances, I examined whether the removal of the item would result in improved model fit. After removing item 18 from the 47-item four-factor model, the values for the TLI and CFI goodness-of-fit indices did not meet the criteria discussed by Cheung and Rensvold (2002) mentioned earlier. When taking into account all of the model-comparison data, results suggest that the 47-item four-factor model provides the best fit to the data among the three models, but none of the models provides a fit that meets recommended standards.

CHAPTER V

DISCUSSION

The findings of this study provide preliminary support for the reliability and validity of the EJAS to evaluate mental health professionals' self-perceived attitudes, knowledge, and skills regarding environmental justice advocacy. The results also suggest that further investigations need to occur regarding the factor structure of the measure and that improvements can be made to enhance the internal structural validity of the measure.

The mental health professions of counseling psychology, counseling, and social work place a strong emphasis on the importance of being multiculturally competent (Goodman et al., 2004; Ivey & Collins, 2003; Ratts et al., 2004). Over the past three decades, the specialties have suggested that adopting an advocacy role in our work as mental health professionals is necessary to address the political and institutional inequalities negatively influencing the lives of marginalized groups (Lewis & Bradley, 2000; Sanders, 2000; Toporek & Liu, 2001). Some scholars have suggested that addressing the disproportionate exposure to environmental toxicants for low-income individuals and people of color is an additional topic needing to be integrated into our view of social justice and multicultural work (Santiago-Rivera et al., 2007). As such, the purpose of this study was to develop and conduct initial validation procedures for the

Environmental Justice Advocacy Scale, a measure evaluating attitudes, knowledge, and perceived skills for mental health professionals.

The population surveyed in this study was comprised of a diverse group of mental health professionals in terms of specialty area, age, educational status, clinical experience, and ethnic background. This population represented the specialties of counseling psychology, school psychology (for Study 1 only), counseling, and social work. Three independent samples were surveyed in the three studies that were conducted to evaluate the measure. The first study examined the initial measure and addressed issues related to the administration of the survey (e.g., instructions, scoring scale, and item wording). The second study examined the initial factor structure, internal consistency, and concurrent and discriminant validity. The third study examined the internal structural validity of the measure on an additional sample. Participants were asked to complete all measures via the Internet. Reliability, validity, exploratory factor analysis, and confirmatory factor analyses were conducted.

Summary of Results

The results of Study 1 consisted of refining the measure and making the following changes: Definitions central to the measure were operationalized and provided repeatedly for participants throughout the survey, along with the scoring scale; items within the Attitudes, Knowledge, and Skills domains were reworded for consistency; and participant feedback led to the removal and rewording of 17 items. The results of Study 2 supported a three-factor structure organized by Attitudes, Knowledge,

and Skills. The results of Study 3 suggested that a four-factor model was an improvement over the three-factor model and specified two types of knowledge related to environmental justice advocacy: (a) general environmental justice knowledge, and (b) psychological- and physical-health-related environmental justice knowledge. Although the factor structure explained a substantial amount of variance of the EJAS items, a superior fit was not indicated based on the criteria outlined by Hu and Bentler (1995). However, the combined results of all three studies conducted in this dissertation seem to provide evidence for an adequate instrument that can be improved with further examination.

One possible explanation for the results regarding model fit might be due to the depth and breadth of the constructs measured in this survey. The items included in the Attitudes, Knowledge-General Environmental Justice, Knowledge-Physical and Psychological Health Environmental Justice, and Skills domains were designed to be broad in nature. The range and average interitem correlation for the subscales were as follows: Attitudes (.33-.63; .47); Knowledge-General Environmental Justice (.30-.74; .50); Knowledge-Psychological and Physical Health Environmental Justice (.40-.72; .54); and Skills (.34-.82; .58). Given the moderate-high average interitem correlations, and that all correlations were above .30, it appears that the constructs being measured exhibit strong correlation within each subscale. Since the measure was developed to assess general attitudes, knowledge, and skills in a newly emerging area for mental health professionals, the breadth of information surveyed in this measure seems scientifically appropriate for this topic when available research on this topic is taken

into account. Therefore, the data suggest that the items within each construct have an appropriate level of breadth and depth of focus.

It might be helpful to further distinguish the two Knowledge subscales from one another. When comparing correlations between subscales, the Knowledge-General Environmental Justice and Knowledge-Psychological and Physical-Health Related Environmental Justice subscales exhibited the strongest correlation. The EJAS was developed to address the concept of environmental justice and focus on general knowledge. However, using the results of Study 3 and the extant literature as bases, one might improve the measure by further differentiating the Knowledge items. Therefore, focusing items more specifically on these two topics is worthy of future investigation.

Another possible modification that could result in a better fit might include emphasizing Psychological Health Environmental Justice Knowledge and removing the Knowledge items associated with Physical Health. Removing the Physical Health items could simplify the measure. However, the extant literature does not support this option. Literature shows that a person's physical health status (perceived or real) greatly influences his or her psychological health status and vice versa (Baum & Fleming, 1993; Downey & Van Willigen, 2005; Edelstein, 2004; Eysenck, 1995; Lima, 2004; Palinkas et al., 1992; Santiago-Rivera et al., 2007; Tucker, 1998). Therefore, research suggests that both physical and psychological health should be addressed when considering attitudes, knowledge, and skills related to environmental justice advocacy.

These results indicate preliminary support of a four-factor model for the EJAS. However, increasing construct validity is necessary and will be discussed shortly. Minor

revisions in existing items may potentially enhance the utility of the scale. Additionally, the development of new items in content areas not adequately represented may also improve scale usability. The internal consistency of the EJAS was consistently very strong in all of the examined models. This suggests that the items on the scale are related, but contribute unique information as well.

As mentioned earlier, participants in the current investigations represented a diverse sample in terms of specialty area, age, educational status, level of clinical experience, and ethnic background. Additionally, since the individuals surveyed were the intended population for the measure, the results suggest that data obtained from the measure may allow researchers to make modest inferences regarding generalizability should the measure be used in future studies.

Content validity was supported by a comprehensive review of the literature addressing environmental justice literature. Content validity was further supported by consulting with professionals with expertise in fields addressing environmental justice issues. Construct validity was supported by the exploratory factor analysis, but was not replicated in the confirmatory factor analysis. The hypothesized three-factor model did not meet the minimum standards that would support the validity of the constructs. A four-factor model seemed to suggest a better fitting model, but also did not meet the minimum standards for recommended fit. Even so, the results of the studies seem to suggest that further investigation regarding the measure with minor modifications to items and subscales may lead to an improved measure that meets standards of recommended fit.

Concurrent validity of the EJAS was supported by its significant positive relationship with the use of the Modified ECOSCALE measuring environmentally oriented Attitudes/Knowledge and Behaviors. Concurrent validity was also supported by its significant relationship in the hypothesized direction with endorsement of beliefs about client and political advocacy. Therefore, it is likely that the Environmental Justice Advocacy Scale measures aspects of attitudes, knowledge, and skills that are relevant to both environmental issues and client and political advocacy.

Discriminant validity of the EJAS was supported by the low correlations in the hypothesized direction with a measure of self-esteem. These results indicate that the concepts inherent in the EJAS are likely different from the concept of self-esteem.

Socially desirable responding appears to be a minor concern for the EJAS Full Scale, Attitude Subscale, and Knowledge Subscale, as evidenced by the significant low, positive relationships between these components of the EJAS and the measure of social desirability. As expected, a nonsignificant relationship was found between the EJAS Skills Subscale and the measure of socially desirable responding. The results are not surprising due to similar results having been found in previous studies focused on the measurement of multicultural competence of mental health professionals (Constantine & Ladany, 2000). Additionally, due to the current emphasis on environmental issues in the media, higher education, and psychology in general, these results seem appropriate. This may be especially true for mental health professionals since they are highly educated and often aware of national and global issues.

Limitations

Due to the exploratory nature of this study, replication using other samples is needed. Increasing the sample size for each specialty within the mental health professions (e.g., counseling, counseling psychology, social work, marriage and family therapists) would likely increase the generalizability of the findings. Additionally, gathering information regarding supplementary demographic characteristics of the sample (e.g., geographic location, economic background) might enhance the ability for researchers to draw inferences regarding EJAS scores. Additional demographic information may increase researchers' understanding of EJAS score variability (e.g., means, standard deviations) and may suggest ways in which variability might be enhanced.

Due to the low internal consistencies of the original ECOSCALE, which resulted in conducting a factor analysis of the measure in Study 2, caution must be used in interpreting the findings regarding concurrent validity. Additionally, further exploration utilizing newly developed measures that assess attitudes, knowledge, skills and/or behaviors related to environmental issues may be beneficial to further establish concurrent validity. Due to the limited number of items addressing client and political advocacy on the Demographic Form for these dissertation studies, further exploration regarding their role in environmental justice advocacy may be beneficial.

Implications for Future Research, Training, and Practice

Research

Further research on the EJAS needs to be conducted to elucidate the optimal factor structure as new literature emerges relevant to environmental justice advocacy. Additionally, further examination of the measure with diverse populations and assessing for group differences between specialties with the mental health professions will likely expand the generalizability of the measure and increase the relevance for a wider variety of mental health professionals. As mentioned earlier, further work needs to be conducted to examine concurrent validity. At the time of this study, few measures existed to examine attitudes, knowledge, and behaviors related to environmental issues. A recent literature search uncovered zero additional measures since the commencement of this study. This conclusion seems to suggest that research developing psychometrically sound measures examining environmental attitudes, knowledge, and behaviors is warranted. Research also suggests that measures addressing social justice and multicultural competence might be vulnerable to socially desirable responding (Constantine & Ladany, 2000). Therefore, developing a subscale to examine socially desirability may enhance usability of the data derived from the EJAS. However, continued investigation regarding socially desirable responding is warranted in light of recent evidence suggesting that socially desirable response patterns are correlated more highly with personality traits than with the validity of the scores from a measure (Mathie & Wakeling, 2010).

Upon further validation of the measure, mental health professionals might benefit from future research examining training variables that result in positive changes in attitudes, knowledge, and skills regarding environmental justice advocacy. Factors worth examining might include how programs infuse environmental justice content into the curriculum and how supervisory interventions focused on the psychological, physical, and cultural ramifications of environmental injustice may influence environmental justice advocacy competence.

Training

Mental health professionals have supported the idea that training in social justice should be a primary emphasis for graduate training programs (Vera & Speight, 2007). Additionally, APA's recent report addressing the interface between psychology and global climate change (APA Task Force, 2009) suggested an urgent need for psychologists to directly engage in ameliorating the impacts of global climate change. Both can be accomplished if training programs address environmental justice issues. The APA report reviews extant data and suggests that global climate change will increase competition for scarce resources, thus affecting interpersonal and intergroup behavior. Since interpersonal and intergroup behavior is a primary focus of the mental health professions, this topic seems both timely and germane to the field of psychology in general. The APA report suggests that information about environmental issues needs to be infused into psychological curriculum so that psychologists will be prepared to address the impact of environmental problems in the future. The report also suggests

that clinicians need to be prepared to deal with therapeutic issues that arise due to the increased stress and anxiety resulting from global climate change. This suggestion is congruent with previous literature addressing environmental justice in general (see, e.g., Downey & Van Willigen, 2005; Palinkas, Downs, et al., 1993; Palinkas, Petterson, et al., 1993; Santiago-Rivera et al., 2007).

Previous literature has also suggested that awareness and knowledge about environmental racism is associated with mental health professionals' level of multicultural competence (Santiago-Rivera et al., 2006). One of the primary purposes for the development of this measure was to create an instrument that would allow mental health graduate program faculty assess trainees' attitudes, knowledge, and skills related to environmental justice advocacy issues. As a result, training programs may benefit from utilizing this measure to conduct preliminary evaluation of their students' attitudes, knowledge, and skills related to environmental justice. Assessment of this nature may assist programs in evaluating the role of environmental issues in an overarching justice framework for mental health professionals. Finally, previous studies have suggested that mental health professionals' exposure to knowledge regarding the institutional barriers clients face increases the likelihood that they will engage in advocacy efforts for, and with, clients (Dorsey, 1999; Wolff & Schlesinger, 2002). As a result, creating opportunities in which mental health professionals can gain firsthand experience focusing on environmental injustice may increase the likelihood that trainees will engage in client and political advocacy related to environmental injustice for their clients.

Practice

Scholars have noted that exposure to environmental contaminants and the psychological and physical health problems associated with exposure are not distributed equally across ethnic majority and minority populations (Pellow & Brulle, 2005; UCC, 2007). As a result, it may be beneficial for practitioners to (a) intentionally inquire into clients' geographic location and hazards located in the nearby environment, and (b) explore connections between presenting problems and the way in which environmental injustice may contribute to negative symptoms in clients' lives. The Environmental Justice Advocacy Scale may enable clinicians to assess their own attitudes, knowledge, and skills related to environmental justice issues. Accurate assessment will assist clinicians in identifying their strengths and weaknesses so that they will be better prepared to address issues presented by clients in therapeutic settings (e.g., impact of stress and anxiety on physical health, the psychological stages associated with exposure to environmental contaminants, the cultural implications associated with environmental injustice). The knowledge gained from dissemination of the measure may help professionals inquire into effective intervention approaches that address environmental justice issues. Once identified, model programs could be developed and training for mental health professionals could be made available and accessible. Finally, accurate assessment of strengths and weaknesses regarding environmental justice advocacy attitudes, knowledge, and skills may contribute to more collaborative relationships between mental health professions, other psychological specialties, and

environmental experts by highlighting the unique qualities that mental health professionals bring to these professional relationships.

Conclusion

In summary, the purpose of this dissertation was to develop and conduct initial validation procedures for the Environmental Justice Advocacy Scale. The findings indicate that the intended three-factor structure borne out by the EFA was not replicated in the CFA. However, the four-factor model explained a substantial amount of variance, and results were promising enough to suggest that further refinement of this measure is warranted. The three- and four-factor EJAS demonstrated a high level of internal consistency. Concurrent and discriminant validity appeared adequate.

This study was the initial attempt to examine the constructs related to environment justice advocacy in the mental health professions. Further refinement of the measure is needed. It is my hope that this study will encourage researchers, trainers, and practitioners to view the role of environmental justice advocacy as a critical component within a social justice framework in the mental health professions.

APPENDIX

INSTRUMENTS

The Environmental Justice Advocacy Scale (EJAS): Initial Version

Directions: This survey is designed to help you evaluate your current attitudes/beliefs and knowledge related to Environmental Justice Advocacy. The survey includes a list of statements focused on environmental justice advocacy. Please read each statement carefully. Based on the scoring scale outlined below, please select the response that best fits your reaction to each statement.

Scoring Scale				
Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
5	4	3	2	1

	Item					
#	Environmental Justice Advocacy Scale: Initial Version	Scoring Scale				
1	I believe it is important to influence public policy through advocacy efforts.	5	4	3	2	1
2	I believe it is important to conduct culturally-appropriate outreach activities.	5	4	3	2	1
3	I believe it is important to help clients identify external barriers that impact their development.	5	4	3	2	1
4	I have knowledge about developing coalitions that cut across race, class, and international lines.	5	4	3	2	1
5	I understand that advocacy-based counseling involves both working work "with" a client and sometimes working "on behalf of" a client.	5	4	3	2	1
6	I have knowledge about a variety of advocacy strategies that can be utilized with individual clients.	5	4	3	2	1
7	I am aware of a variety of advocacy strategies that can be applied to community settings.	5	4	3	2	1
8	I have worked with clients in order to increase their sense of personal power.	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Initial Version	Scoring Scale				
9	I have negotiated relevant services/systems on behalf of clients.	5	4	3	2	1
10	I integrate the contextual factors (e.g., neighborhood quality, poverty) impacting my clients into my case conceptualization and treatment plan.	5	4	3	2	1
11	I believe it is important to work to strengthen the social justice mission of environmental organizations.	5	4	3	2	1
12	I believe it is important to advocate for the public's right to know about the risks associated with industry and environmental policies.	5	4	3	2	1
13	I believe it is important to lobby policymakers and influence legislation focused on environmental justice.	5	4	3	2	1
14	I have taught my clients coping skills to reduce their stress about environmental conditions.	5	4	3	2	1
15	I have developed prevention programs that address the mental health needs of communities around environmental justice issues.	5	4	3	2	1
16	I have collaborated with interdisciplinary teams to conduct prevention-oriented, environmental justice research.	5	4	3	2	1
17	I have facilitated community discussions that encourage social action in response to environmental injustice.	5	4	3	2	1
18	I believe it is important to provide outreach and/or crisis counseling services to victims of environmental contamination.	5	4	3	2	1
19	I believe it is important to assess the mental health needs of a community exposed to environmental contamination.	5	4	3	2	1
20	I am aware of the barriers communities of color face in regards to environmental justice.	5	4	3	2	1
21	I have knowledge about educating community and/or school groups about environmental justice issues.	5	4	3	2	1
22	I am aware of at least 2 roles that mental health professionals can engage in to address environmental injustice.	5	4	3	2	1
23	I believe it is important to identify clients' strengths that can assist them in confronting environmental injustice.	5	4	3	2	1
24	I have knowledge of effective advocacy efforts focused on environmental justice.	5	4	3	2	1
25	I am aware of how specific public policies reinforce environmental injustice.	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Initial Version	Scoring Scale				
26	I have established alliances between environmental and social justice organizations.	5	4	3	2	1
27	I have provided clients with information about how the environment may be contributing to their presenting problems.	5	4	3	2	1
28	I have knowledge about how to interpret data in order to illustrate the need for action around environmental justice issues.	5	4	3	2	1
	Health Consequences of Exposure to Environmental Hazards					
29	I believe it is important to understand the social and political mechanisms that force the costs of environmental damage onto the public versus environmental polluters.	5	4	3	2	1
30	I believe it is important be informed about research that indicates race and class are significant determinates of proximity to known and prospective environmental hazards.	5	4	3	2	1
31	I believe it is important to acquire information about the 3.S. environmental justice movement.	5	4	3	2	1
32	I believe it is important to understand the unique issues faced by specific ethnic groups in relation to environmental issues.	5	4	3	2	1
33	I have participated in discussions about environmental injustice.	5	4	3	2	1
34	I have learned about community resources where I can gain access to accurate information regarding environmental hazards.	5	4	3	2	1
35	I am aware that environmental issues have been linked to social justice since the civil rights era.	5	4	3	2	1
36	I am aware that environmental discrimination occurs, in part, due to environmental policies.	5	4	3	2	1
37	I understand that penalties for violating federal environmental pollution laws are significantly higher in white communities than in minority communities.	5	4	3	2	1
38	I am aware of specific incidents of environmental contamination that have negatively impacted the health of communities.	5	4	3	2	1
39	I am aware that the most common victims of environmental hazards include individuals who identify as ethnic minorities and economically disadvantaged.	5	4	3	2	1
40	I understand that residential segregation is one reason why minority communities experience differential exposure to toxic substances.	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Initial Version	Scoring Scale				
41	I understand that the benefits of environmental legislation (e.g., The Clean Air Act) are enforced inequitably between communities of color and the white population.	5	4	3	2	1
42	I am aware that toxic facilities (e.g., hazardous waste facilities, landfills) are frequently located in minority and low-income communities.	5	4	3	2	1
43	I understand that the government is less stringent in addressing environmental clean-up projects in minority communities than in white communities.	5	4	3	2	1
44	I understand the meaning of the term "environmental racism."	5	4	3	2	1
45	I was familiar with the term environmental justice prior to completing this survey.	5	4	3	2	1
46	I believe it is important to know about physical health problems associated with chronic stress that emerge from environmental contamination.	5	4	3	2	1
47	I believe it is important to the underlying social determinants of environmental inequality in order to deal effectively with existing health disparities in the 3.S.	5	4	3	2	1
48	I am knowledgeable about the psychological ramifications of relocating a community because of environmental contamination.	5	4	3	2	1
49	I am aware of the importance of the role of social support in reducing the negative psychological consequences of exposure to toxins.	5	4	3	2	1
50	I have educated communities about the psychological consequences of environmental contaminants.	5	4	3	2	1
51	I believe it is important to understand the psychological stages people transition through once they become aware of being exposed to environmental contaminants.	5	4	3	2	1
52	I believe that the quality of a person's environment impacts his/her overall health and well-being.	5	4	3	2	1
53	I am aware that people living near a hazardous waste facility experience higher levels of chronic stress when compared to individuals not living near a hazardous waste facility.	5	4	3	2	1
54	I am aware that differential exposure to environmental pollution creates health disparities among varying ethnic groups.	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Initial Version	Scoring Scale				
55	I am aware that fear, uncertainty, and a loss of control are common psychological reactions after being exposed to environmental contaminants.	5	4	3	2	1
56	I am aware that exposure to toxic substances may increase incidence of psychological health problems such as depression and anxiety.	5	4	3	2	1
57	I am aware that environmental pollution affects the ability for groups to express themselves in culturally congruent ways (e.g., dietary habits, hunting & agricultural practices, traditional economies).	5	4	3	2	1
58	I have knowledge about the physical health effects associated with exposure to hazardous waste.	5	4	3	2	1

Demographic Questionnaire: Study 1

Instructions: These questions request general background information about you. All of your answers to these questions will remain. Please do not write your name, or any other identifying information on this sheet. Please read through each question and respond to each item by placing an "X" next to the one category that best represents you. You may skip any question(s) that you feel uncomfortable with, or choose not to answer. If you have any questions as you complete this questionnaire, or if you do not understand any of the questions, please notify the researcher.

1) Age: _____

2) Please indicate the number of years you have been enrolled in your doctoral program:

_____ 1
_____ 2
_____ 3
_____ 4
_____ 5
_____ 6
_____ 7 or more

3) Please describe the current training model of your graduate program.

_____ Scientist-Practitioner
_____ Clinical-Scientist
_____ Other (please describe):

4) How satisfied are you with your current training program?

_____ Very satisfied
_____ Somewhat satisfied
_____ Uncertain
_____ Somewhat unsatisfied
_____ Very unsatisfied

5) How many years of clinical experience have you had?

6) How familiar are you with the Ecological Model of human development (as outlined by Urie Bronfenbrenner)?

_____ Very familiar
_____ Somewhat familiar
_____ Uncertain
_____ Not familiar
_____ Very unfamiliar

7) How familiar are you with the Multicultural Counseling Competency framework outlined by Sue, Arredondo, & McDavis, 1992?

_____ Very familiar

_____ Somewhat familiar

_____ Uncertain

_____ Not familiar

_____ Very unfamiliar

The Environmental Justice Advocacy Scale (EJAS): Study 1

The following definitions are employed in this survey:

Environment: The physical (e.g., soil, water, air) and psycho-social (e.g., culture, institutions, neighborhood quality) surroundings that affect human beings.

Environmental Justice: "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate share of the negative human health or environmental impacts of pollution or environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies" (EPA, 1998, p.2).

Environmental Hazards: Chemical, physical, mechanical, biological, and psycho-social events caused by humans that threaten the surrounding environment.

Directions: This survey is designed to help you evaluate your current attitudes/beliefs, knowledge, and skills related to Environmental Justice Advocacy. The survey includes a list of statements focused on environmental justice advocacy. Please read each statement carefully and refer to the definitions provided above as you respond to each statement. Based on the scoring scale outlined below, select the response that best fits your reaction to each statement:

Strongly Agree:	**6**
Agree:	**5**
Slightly Agree	**4**
Slightly Disagree	**3**
Disagree:	**2**
Strongly Disagree	**1**

	Item						
#	Environmental Justice Advocacy Scale: Study 1	Scoring Scale					
1	It is important for social justice organizations to address environmental injustice (A).	6	5	4	3	2	1
2	Advocating for the public's right to know about the risks associated with environmental policies is better left to professionals outside of the mental health fields (A).	6	5	4	3	2	1
3	Mental health professionals should lobby policymakers to influence legislation focused on environmental justice (A).	6	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Study 1	Scoring Scale					
4	Counselors should teach clients coping skills to reduce their stress about hazardous environmental conditions (A).	6	5	4	3	2	1
5	Environmental justice research is not relevant to mental health professionals (A).	6	5	4	3	2	1
6	Developing programs to address the mental health needs of communities around environmental justice is better left to other professions (A).	6	5	4	3	2	1
7	I have knowledge about outreach and/or crisis counseling services available to victims of environmental contamination (K).	6	5	4	3	2	1
8	I am aware of strategies that assess the mental health needs of a community exposed to environmental contamination (K).	6	5	4	3	2	1
9	Environmental Justice Advocacy (continued) I am aware of research addressing the external barriers faced by communities of color regarding environmental justice (K).	6	5	4	3	2	1
10	I have knowledge about educating community and/or school groups about environmental justice issues (K).	6	5	4	3	2	1
11	I am aware of at least 2 roles that mental health professionals can engage in to address environmental injustice (K).	6	5	4	3	2	1
12	I am not aware of any research focusing on environmental justice (K).	6	5	4	3	2	1
13	I have developed programs that address the mental health needs of communities experiencing environmental injustice (S).	6	5	4	3	2	1
14	I have not collaborated with interdisciplinary teams to conduct environmental justice research (S).	6	5	4	3	2	1
15	I have facilitated community discussions in response to environmental injustice (S).	6	5	4	3	2	1
16	I have established collaborative relationships between environmental and social justice leaders in my community (S).	6	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Study 1	Scoring Scale					
17	I have provided information to clients about how the environment may be contributing to their presenting problems (S).	6	5	4	3	2	1
18	I use advocacy strategies to address environmental justice issues (S).	6	5	4	3	2	1
19	Social and political mechanisms exist that force the costs of environmental damage onto the public instead of onto the polluters (K).	6	5	4	3	2	1
20	Research indicating racial and/or socioeconomic differences regarding rates of exposure to environmental hazards is not relevant to the mental health professions (A).	6	5	4	3	2	1
21	It is important for counselors to understand the history of the U.S. environmental justice movement (A).	6	5	4	3	2	1
22	It is important for mental health professionals to know how to access accurate information regarding environmental hazards (A).	6	5	4	3	2	1
23	Access to living in an environment free of contaminants is a social justice issue (A).	6	5	4	3	2	1
24	I believe that environmental policies are enforced equitably across racial and/or socioeconomic groups (A).	6	5	4	3	2	1
25	Knowledge about differential exposure rates to environmental hazards by ethnic group is not relevant to the mental health field (A).	6	5	4	3	2	1
26	Penalties for violating federal environmental pollution laws are significantly higher in white communities than in minority communities (K).	6	5	4	3	2	1
27	Specific incidents of environmental contamination have negatively impacted the health of communities (K).	6	5	4	3	2	1
28	The most common victims of environmental hazards include individuals who identify as ethnic minorities and economically disadvantaged (K).	6	5	4	3	2	1
29	Residential segregation can create differing exposure rates to toxic substances for majority and minority populations (K).	6	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Study 1	Scoring Scale					
30	The benefits of environmental legislation (e.g., The Clean Air Act) are enforced inequitably between communities of color and the white population (K).	6	5	4	3	2	1
31	Toxic facilities (e.g., hazardous waste facilities, landfills) are frequently located in minority and low-income communities (K).	6	5	4	3	2	1
32	I am aware of research indicating the government is less stringent in addressing environmental clean-up projects in minority communities than they are in white communities (K).	6	5	4	3	2	1
33	I was unfamiliar with the term environmental justice prior to completing this survey (K).	6	5	4	3	2	1
34	I have not participated in discussions about environmental justice (S).	6	5	4	3	2	1
35	I utilize community resources to obtain accurate information regarding environmental hazards (S).	6	5	4	3	2	1
36	I am able to describe the unique concerns faced by specific ethnic groups in relation to environmental issues (S).	6	5	4	3	2	1
37	I am able to convey the meaning of the term environmental justice to my colleagues (S).	6	5	4	3	2	1
38	I can articulate the meaning of the term environmental racism (S).	6	5	4	3	2	1
39	Mental health professionals should be informed about the physical health problems associated with stress that emerges due to environmental contamination (A).	6	5	4	3	2	1
40	Acquiring information about the social determinants of environmental equality is unnecessary to deal effectively with existing health disparities in the U.S. (A).	6	5	4	3	2	1
41	Counselors should be informed about the psychological ramifications of relocating a community due to environmental contamination (A).	6	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Study 1	Scoring Scale					
42	Social support is essential to reduce the negative psychological consequences of exposure to toxins (A).	6	5	4	3	2	1
43	It is important for mental health professionals to educate community leaders about the psychological consequences of environmental contaminants (A).	6	5	4	3	2	1
44	Physical health effects associated with exposure to hazardous waste do not contribute to psychological problems (K).	6	5	4	3	2	1
45	I understand that people transition through psychological stages once they become aware of being exposed to environmental contaminants (K).	6	5	4	3	2	1
46	I need more information about how the quality of a person's environment impacts his/her overall health and well-being (K).	6	5	4	3	2	1
47	People living near a hazardous waste facility experience higher levels of chronic stress when compared to individuals not living near a hazardous waste facility (K).	6	5	4	3	2	1
48	Differential exposure to environmental pollution creates health disparities among varying ethnic groups (K).	6	5	4	3	2	1
49	I am aware that fear, uncertainty, and a loss of control are common psychological reactions after being exposed to environmental contaminants (K).	6	5	4	3	2	1
50	I am not aware that exposure to toxic substances may increase incidence of psychological health problems (e.g., depression) (K).	6	5	4	3	2	1
51	Environmental pollution impacts a group's ability to express itself in culturally congruent ways (e.g., dietary habits, hunting and agricultural practices, traditional economies) (K).	6	5	4	3	2	1

#	Item Environmental Justice Advocacy Scale: Study 1 (continued)	Scoring Scale					
52	I have not educated communities about the psychological consequences of exposure to environmental contaminants (S).	6	5	4	3	2	1
53	I educate my clients about psychological problems that may arise due to exposure to toxic substances (S).	6	5	4	3	2	1
54	I work with community groups to help preserve cultural traditions that may be negatively impacted after exposure to environmental hazards (S).	6	5	4	3	2	1
55	I can identify psychological problems that emerge due to exposure to environmental contaminants (S).	6	5	4	3	2	1
56	I help clients identify environmental conditions that may be contributing to chronic stress (S).	6	5	4	3	2	1

Demographic Questionnaire: Studies 2 and 3

Instructions: These questions request general background information about you. All of your answers to these questions will remain confidential. Please do not write your name, or any other identifying information on this sheet. Please read through each question and respond to each item by placing an "X" next to the one category that best represents you. You may skip any question(s) that you feel uncomfortable with, or choose not to answer. If you have any questions as you complete this questionnaire, or if you do not understand any of the questions, please notify the researcher.

1) Age: _____

2) Gender: _____Male _____Female _____Transgender

3) Race/Ethnicity: *please mark all that apply*

_____ Black or African-American
_____ White or Euro-American
_____ Hispanic / Latino(a) / Chicano(a)
_____ Asian or Asian-American
_____ Native American or Alaskan Native
_____ Pacific Islander
_____ North African
_____ Middle Eastern
_____ Other (please specify) _____

4) Professional Status (select your primary role)

_____ Student
_____ Mental Health Professional
_____ Counselor Educator
_____ Other (please specify _____
_____ Not applicable

5) If you are currently a student:

a) Please select the academic level of the program you are enrolled in:

_____ Master's program
_____ Doctoral program
_____ Other (please specify) _____
_____ Not applicable

b) Please indicate the number of years you have been enrolled in your academic program:

_____ 1
_____ 2
_____ 3
_____ 4
_____ 5
_____ 6
_____ 7 or more
_____ Not applicable

6) If you are an international student, please indicate your country of origin:

7) If you are a mental health professional, please specify your area of mental health specialization:
_____ School Counseling
_____ Mental Health/Community Counseling
_____ Rehabilitation Counseling
_____ Marriage and Family Therapy
_____ Counseling Psychology
_____ Social Work
_____ Other (please specify) _____
_____ Not applicable

8) Please describe your academic training prior to becoming a student/mental health professional?
_____ B.A. (please specify field of study) _____
_____ B.S. (please specify field of study) _____
_____ M.A. (please specify field of study) _____
_____ M.S. (please specify field of study) _____
_____ Other (please specify) _____
_____ Not applicable

9) How many years of clinical experience have you had? _____
_____ Not applicable

For questions 10 and 11, please read the definitions below and select the response that best fits your reaction to the statements.

Client advocacy: Actions that directly impact the client's environment so that the environment is more responsive to the client's needs.

Political advocacy: Actions that confront political, economic, and social institutions in order to produce systemic change.

10) Do you believe that mental health professionals are obligated to promote social justice through client advocacy as part of their professional role?

Strongly Agree Agree Slightly Agree Slightly Disagree Disagree Strongly Disagree

11) Do you believe that mental health professionals are obligated to promote social justice through political advocacy as part of their professional role?

Strongly Agree Agree Slightly Agree Slightly Disagree Disagree Strongly Disagree

Environmental Justice Advocacy Scale: Studies 2 and 3

The following definitions are employed in this survey:

Environment: The physical (e.g., soil, water, air) and psycho-social (e.g., culture, institutions, neighborhood quality) surroundings that affect human beings.

Environmental Justice: "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate share of the negative human health or environmental impacts of pollution or environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies." (Environmental Protection Agency, 1998)

Environmental Hazards: Chemical, physical, mechanical, biological, and psycho-social events caused by humans that threaten the surrounding environment.

For your convenience, these definitions will be repeated at the bottom of each page of this survey.

This survey is designed to help you evaluate your current attitudes, beliefs, knowledge, and skills related to environmental justice advocacy. The survey includes a list of statements focused on environmental justice advocacy. Please read each statement carefully and refer to the definitions below as you respond to each statement. Based on the agreement scale outlined below, select the response that best fits your reaction to each statement.

	Item						
	Environmental Justice Advocacy Scale: Studies 2 and 3	Scoring Scale					
#	ATTITUDES						
	I BELIEVE…						
1	...it is important for social justice organizations to address environmental injustice.	6	5	4	3	2	1
2	...it is NOT appropriate for mental health professionals to advocate for the public's right to know about risks associated with environmental policies.	6	5	4	3	2	1

	Item						
	Environmental Justice Advocacy Scale: Studies 2 and 3	Scoring Scale					
#	ATTITUDES						
3	...it is important for mental health professions to influence environmental justice legislation.	6	5	4	3	2	1
4	...it is important for mental health professionals to teach clients skills to reduce their stress associated with hazardous environmental conditions.	6	5	4	3	2	1
5	...that environmental justice research is NOT relevant to mental health professionals.	6	5	4	3	2	1
6	...it is important for mental health professionals to develop programs that address the psychological needs of communities experiencing environmental injustice.	6	5	4	3	2	1
7	...that racial and/or socioeconomic differences regarding rates of exposure to environmental hazards is NOT relevant to the mental health professions.	6	5	4	3	2	1
8	...it is important for mental health professionals to understand the circumstances that brought about the U.S. environmental justice movement.	6	5	4	3	2	1
9	...it is important for mental health professionals to know how to access accurate information regarding environmental hazards.	6	5	4	3	2	1
10	...information about ethnic differences regarding exposure to environmental hazards is NOT relevant to mental health professionals.	6	5	4	3	2	1
11	...it is important for mental health professionals to be informed about physical health problems associated with exposure to environmental hazards.	6	5	4	3	2	1
12	...it is important for mental health professionals to be informed about the psychological ramifications of relocating a community due to environmental contamination.	6	5	4	3	2	1
13	...it is important for mental health professionals to educate community leaders about the psychological consequences of environmental contaminants.	6	5	4	3	2	1

	Item						
	Environmental Justice Advocacy Scale: Studies 2 & 3	Scoring Scale					
#	KNOWLEDGE						
14	I can describe external barriers (e.g., specific institutional policies) that exacerbate environmental injustice for communities of color.	6	5	4	3	2	1
15	I can describe specific incidents of environmental contamination that have negatively impacted the health of communities.	6	5	4	3	2	1
16	I can describe some of the unique concerns faced by specific ethnic groups in relation to environmental issues.	6	5	4	3	2	1
17	I can describe the general demographic characteristics of the most common victims of environmental hazards.	6	5	4	3	2	1
18	I can describe the meaning of the term environmental justice.	6	5	4	3	2	1
19	I CANNOT describe the inequities experienced by specific groups (e.g., racial/ethnic minorities, individuals experiencing economic disadvantage) related to the enforcement of environmental policies.	6	5	4	3	2	1
20	I can describe the meaning of the term environmental racism.	6	5	4	3	2	1
21	I can describe the nature of inequities involved in locating toxic facilities in communities.	6	5	4	3	2	1
22	Prior to completing this survey, I could NOT describe the term environmental justice.	6	5	4	3	2	1
23	I CANNOT describe how the physical health effects associated with exposure to hazardous waste contribute to psychological problems.	6	5	4	3	2	1
24	I can describe how people transition through psychological stages once they become aware of their exposure to environmental contaminants.	6	5	4	3	2	1
25	I can describe how social support reduces some of the negative psychological consequences (e.g., stress) associated with exposure to toxins.	6	5	4	3	2	1
26	I can describe the differences in prevalence of chronic stress for people who live near a hazardous waste facility in comparison to people who do not live near a hazardous waste facility.	6	5	4	3	2	1

	Item						
	Environmental Justice Advocacy Scale: Studies 2 and 3	Scoring Scale					
#	KNOWLEDGE						
27	I can describe how differential rates of exposure to environmental pollution create health disparities among varying ethnic groups.	6	5	4	3	2	1
28	I can describe how common psychological reactions (e.g., fear, uncertainty, and a loss of control) emerge after exposure to environmental contaminants.	6	5	4	3	2	1
29	I CANNOT describe how exposure to toxic substances increases the incidence of psychological problems.	6	5	4	3	2	1
30	I can describe how environmental pollution impacts a group's ability to express itself in culturally congruent ways (e.g., dietary habits, hunting and agricultural practices, traditional economies).	6	5	4	3	2	1
	SKILLS						
31	I have the basic skills to provide outreach and/or crisis counseling services to victims of environmental contamination.	6	5	4	3	2	1
32	I have the basic skills to develop programs that address the mental health needs of communities experiencing environmental injustice.	6	5	4	3	2	1
33	I have the basic skills to assess the mental health needs of communities exposed to environmental contamination.	6	5	4	3	2	1
34	I do NOT have the basic skills to collaborate on an interdisciplinary team and conduct environmental justice research.	6	5	4	3	2	1
35	I have the basic skills to facilitate community discussions in response to environmental injustice.	6	5	4	3	2	1
36	I have the basic skills to educate community OR school groups about environmental justice issues.	6	5	4	3	2	1
37	I have the basic skills to establish collaborative relationships between environmental and social justice leaders in my community.	6	5	4	3	2	1
38	I have the basic skills to engage in multiple roles (e.g., consultant, educator, counselor) to address environmental injustice.	6	5	4	3	2	1

	Item						
	Environmental Justice Advocacy Scale: Studies 2 and 3	Scoring Scale					
#	SKILLS (continued)						
39	I have the basic skills to provide information to clients about how the environment may contribute to their presenting problems.	6	5	4	3	2	1
40	I have the basic skills to implement advocacy strategies (e.g., community education, community organizing) that address environmental justice issues.	6	5	4	3	2	1
41	I do NOT have the basic skills to participate in discussions about environmental justice.	6	5	4	3	2	1
42	I have the basic skills to utilize community resources to obtain accurate information regarding environmental hazards.	6	5	4	3	2	1
43	I do NOT have the basic skills to educate communities about the psychological consequences of exposure to environmental contaminants.	6	5	4	3	2	1
44	I have the basic skills to educate my clients about psychological problems that may arise due to exposure to toxic substances.	6	5	4	3	2	1
45	I have the basic skills to work with community groups to help them preserve cultural traditions that may be negatively impacted after exposure to environmental hazards.	6	5	4	3	2	1
46	I have the basic skills to identify psychological problems that emerge due to exposure to environmental contaminants.	6	5	4	3	2	1
47	I have the basic skills to help clients identify environmental conditions that may contribute to chronic stress.	6	5	4	3	2	1

ECOSCALE (Stone, Barnes, & Montgomery, 1995)

Instructions: Please review the items listed below and score each item by circling the appropriate response.

Subscale and Items						
#	Opinions and Beliefs	Strongly Disagree				Agree
1	The burning of the oil fields in Kuwait, the meltdown at Chernobyl, and the oil spill in Alaska are examples of environmental accidents whose impact is only short term.	1	2	3	4	5
2	The United States is the biggest producer of fluorocarbons, a major source of air pollution.	1	2	3	4	5
3	The earth's population is now approaching 2 billion.	1	2	3	4	5
4	Excess packaging is one source of pollution that could be avoided if manufacturers were more environmentally aware.	1	2	3	4	5
5	Economic growth should take precedence over environmental considerations.	1	2	3	4	5
6	The earth's resources are infinite and should be used to the fullest to increase the human standard of living.	1	2	3	4	5
#	Awareness	Strongly Disagree				Agree
7	The amount of energy I use does not affect the environment to any significant degree.	1	2	3	4	5
8	This country needs more restrictions on residential development (construction of new mall on farmland, new subdivisions, etc.).	1	2	3	4	5
9	If I were a hunter or fisherman, I would kill or catch more if there were no limits.	1	2	3	4	5
10	In order to save energy, pools should not be heated during winter.	1	2	3	4	5

#	Willing to Act	Never				Always
11	I attend environmental /conservation group meetings (Green Peace, Ducks Unlimited, etc.).	1	2	3	4	5
12	I have started/joined consumer boycott programs aimed at companies that produce excess pollution.	1	2	3	4	5
13	Whenever no one is looking I litter.	1	2	3	4	5
14	Wearing exotic furs and leather is not offensive.	1	2	3	4	5
#	Attitude	Strongly Disagree				Agree
15	One of the primary reasons for concern in destruction of the ozone layer is its ability to screen ultraviolet radiation.	1	2	3	4	5
16	There is nothing the average citizen can do to help stop environmental pollution.	1	2	3	4	5
17	My involvement in environmental activities today will help save the environment for future generations.	1	2	3	4	5
18	I would not carpool unless I was forced to. It is too inconvenient.	1	2	3	4	5
#	Action Taken	Never				Always
19	I turn in polluters when I see them dumping toxic liquids.	1	2	3	4	5
20	I have my engine tuned to help stop unwanted air pollution.	1	2	3	4	5
21	I have my oil changed at installations which recycle oil.	1	2	3	4	5
22	The earth is so large that people have little effect on the overall environment.	1	2	3	4	5
23	People who litter should be fined $500 and be forced to work on road crews and pick up garbage.	1	2	3	4	5

#	Ability to Act	Never				Always
24	The EPA stands for "Environmental Planning Association" and it is responsible for matters dealing with protection of the environment.	1	2	3	4	5
25	I do not purchase products that are known to cause pollution.	1	2	3	4	5
26	I vote for proenvironmental politicians.	1	2	3	4	5
27	I cut up plastic rings around six-packs of soft drinks.	1	2	3	4	5
#	Knowledge	Strongly Disagree				Agree
28	Ivory is a hard white stone that when polished can be used in making piano keys.	1	2	3	4	5
29	Acid rain only affects Canada.	1	2	3	4	5
30	It is no use worrying about environmental issues: I can't do anything about them anyway.	1	2	3	4	5
31	I would describe myself as environmentally responsible.	1	2	3	4	5

Modified ECOSCALE

Instructions: Please review the items listed below and score each item by circling the appropriate response.

Subscale and Items						
#	Attitudes and Knowledge	Strongly Disagree				Agree
4	Excess packaging is one source of pollution that could be avoided if manufacturers were more environmentally aware.	1	2	3	4	5
5	Economic growth should take precedence over environmental considerations.	1	2	3	4	5
6	The earth's resources are infinite and should be used to the fullest to increase the human standard of living.	1	2	3	4	5
7	The amount of energy I use does not affect the environment to any significant degree.	1	2	3	4	5
8	This country needs more restrictions on residential development (construction of new mall on farmland, new subdivisions, etc.).	1	2	3	4	5
9	If I were a hunter or fisherman, I would kill or catch more if there were no limits.	1	2	3	4	5
10	In order to save energy, pools should not be heated during winter.	1	2	3	4	5
13	Whenever no one is looking I litter.	1	2	3	4	5
22	The earth is so large that people have little effect on the overall environment.	1	2	3	4	5
29	Acid rain only affects Canada.	1	2	3	4	5
30	It is no use worrying about environmental issues: I can't do anything about them anyway.	1	2	3	4	5

Modified ECOSCALE (continued)

#	Behaviors	Strongly Disagree				Agree
11	I attend environmental /conservation group meetings (Green Peace, Ducks Unlimited, etc.).	1	2	3	4	5
12	I have started/joined consumer boycott programs aimed at companies that produce excess pollution.	1	2	3	4	5
19	I turn in polluters when I see them dumping toxic liquids.	1	2	3	4	5
20	I have my engine tuned to help stop unwanted air pollution.	1	2	3	4	5
21	I have my oil changed at installations which recycle oil.	1	2	3	4	5
26	I vote for proenvironmental politicians.	1	2	3	4	5
31	I would describe myself as environmentally responsible.	1	2	3	4	5

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle SA. If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD.

#	Item	Scoring Scale			
1	On the whole, I am satisfied with myself.	SA	A	D	SD
2	At times, I think I am no good at all.	SA	A	D	SD
3	I feel that I have a number of good qualities.	SA	A	D	SD
4	I am able to do things as well as most other people.	SA	A	D	SD
5	I feel I do not have much to be proud of.	SA	A	D	SD
6	I certainly feel useless at times.	SA	A	D	SD
7	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8	I wish I could have more respect for myself.	SA	A	D	SD
9	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10	I take a positive attitude toward myself.	SA	A	D	SD

Marlowe-Crowne Social Desirability Scale-Form C

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

1	It is sometimes hard for me to go on with my work if I am not encouraged (3).
2	I sometimes feel resentful when I don't get my way (6).
3	On a few occasions, I have given up doing something because I thought too little of my ability (10)
4	There have been times when I felt like rebelling against people in authority even though I knew they were right (12).
5	No matter who I'm talking to, I'm always a good listener (13).
6	There have been occasions when I took advantage of someone (15).
7	I'm always willing to admit it when I make a mistake (16).
8	I sometimes try to get even rather than forgive and forget (19).
9	I am always courteous, even to people who are disagreeable (21).
10	I have never been irked when people expressed ideas very different from my own (26).
11	There have been times when I was quite jealous of the good fortune of others (28).
12	I am sometimes irritated by people who ask favors of me (30).
13	I have never deliberately said something that hurt someone's feelings (33).

This form of the M-C SDS was adapted by Reynolds (1982). The item numbers in parentheses correspond to the original version of the Marlowe-Crown Social Desirability Scale (Crowne & Marlowe, 1960). The numbers in parentheses were not included in the actual dissertation survey.

Environmental Justice Advocacy Scale: Final Version

The following definitions are employed in this survey:

Environment: The physical (e.g. soil, water, air) and psycho-social (e.g. culture, institutions, neighborhood quality) surroundings that affect human beings.

Environmental Justice: "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate share of the negative human health or environmental impacts of pollution or environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies". (Environmental Protection Agency, 1998)

Environmental Hazards: Chemical, physical, mechanical, biological, and psycho-social events caused by humans that threaten the surrounding environment.

For your convenience, these definitions will be repeated at the bottom of each page of this survey.

This survey is designed to help you evaluate your current attitudes, beliefs, knowledge, and skills related to environmental justice advocacy. The survey includes a list of statements focused on environmental justice advocacy. Please read each statement carefully and refer to the definitions as you respond to each statement. Based on the agreement scale outlined below, select the response that best fits your reaction to each statement.

Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
6	5	4	3	2	1

Environmental Justice Advocacy Scale: Final Version								
#	Item	Scoring Scale						
	ATTITUDES							
	I BELIEVE...							
1	...it is important for social justice organizations to address environmental injustice.	6	5	4	3	2	1	

Environmental Justice Advocacy Scale: Final Version (continued)								
#	Item	Scoring Scale						
	ATTITUDES (continued)							
2	...it is NOT appropriate for mental health professionals to advocate for the public's right to know about risks associated with environmental policies.	6	5	4	3	2	1
3	...it is important for mental health professions to influence environmental justice legislation.	6	5	4	3	2	1
4	...it is important for mental health professionals to teach clients skills to reduce their stress associated with hazardous environmental conditions.	6	5	4	3	2	1
5	...that environmental justice research is NOT relevant to mental health professionals.	6	5	4	3	2	1
6	...it is important for mental health professionals to develop programs that address the psychological needs of communities experiencing environmental injustice.	6	5	4	3	2	1
7	...that racial and/or socioeconomic differences regarding rates of exposure to environmental hazards are NOT relevant to the mental health professions.	6	5	4	3	2	1
8	...it is important for mental health professionals to understand the circumstances that brought about the U.S. environmental justice movement.	6	5	4	3	2	1
9	...it is important for mental health professionals to know how to access accurate information regarding environmental hazards.	6	5	4	3	2	1
10	...information about ethnic differences regarding exposure to environmental hazards is NOT relevant to mental health professionals.	6	5	4	3	2	1
11	...it is important for mental health professionals to be informed about physical health problems associated with exposure to environmental hazards.	6	5	4	3	2	1
12	...it is important for mental health professionals to be informed about the psychological ramifications of relocating a community due to environmental contamination.	6	5	4	3	2	1
13	...it is important for mental health professionals to educate community leaders about the psychological consequences of environmental contaminants.	6	5	4	3	2	1
	KNOWLEDGE-General Environmental Justice							
14	I can describe external barriers (e.g. specific institutional policies) that exacerbate environmental injustice for communities of color.	6	5	4	3	2	1

Environmental Justice Advocacy Scale: Final Version (continued)								
#	Item	Scoring Scale						
	KNOWLEDGE-General Environmental Justice (continued)							
15	I can describe specific incidents of environmental contamination that have negatively impacted the health of communities.	6	5	4	3	2	1
16	I can describe some of the unique concerns faced by specific ethnic groups in relation to environmental issues.	6	5	4	3	2	1
17	I can describe the general demographic characteristics of the most common victims of environmental hazards.	6	5	4	3	2	1
18	I can describe the meaning of the term environmental justice.	6	5	4	3	2	1
19	I CANNOT describe the inequities experienced by specific groups (e.g. racial/ethnic minorities, individuals experiencing economic disadvantage) related to the enforcement of environmental policies.	6	5	4	3	2	1
20	I can describe the meaning of the term environmental racism.	6	5	4	3	2	1
21	I can describe the nature of inequities involved in locating toxic facilities in communities.	6	5	4	3	2	1
22	Prior to completing this survey, I could NOT describe the term environmental justice.	6	5	4	3	2	1
	KNOWLEDGE-Psychological and Physical Health Environmental Justice							
23	I CANNOT describe how the physical health effects associated with exposure to hazardous waste contribute to psychological problems.	6	5	4	3	2	1
24	I can describe how people transition through psychological stages once they become aware of their exposure to environmental contaminants.	6	5	4	3	2	1
25	I can describe how social support reduces some of the negative psychological consequences (e.g. stress) associated with exposure to toxins.	6	5	4	3	2	1
26	I can describe the differences in prevalence of chronic stress for people who live near a hazardous waste facility in comparison to people who do not live near a hazardous waste facility.	6	5	4	3	2	1
27	I can describe how differential rates of exposure to environmental pollution create health disparities among varying ethnic groups.	6	5	4	3	2	1

Environmental Justice Advocacy Scale: Final Version (continued)							
#	Item	Scoring Scale					
	KNOWLEDGE-Psychological and Physical Health Environmental Justice (continued)						
28	I can describe how common psychological reactions (e.g. fear, uncertainty, and a loss of control) emerge after exposure to environmental contaminants.	6	5	4	3	2	1
29	I CANNOT describe how exposure to toxic substances increases the incidence of psychological problems.	6	5	4	3	2	1
30	I can describe how environmental pollution impacts a group's ability to express itself in culturally congruent ways (e.g. dietary habits, hunting and agricultural practices, traditional economies).	6	5	4	3	2	1
	SKILLS						
31	I have the basic skills to provide outreach and/or crisis counseling services to victims of environmental contamination.	6	5	4	3	2	1
32	I have the basic skills to develop programs that address the mental health needs of communities experiencing environmental injustice.	6	5	4	3	2	1
33	I have the basic skills to assess the mental health needs of communities exposed to environmental contamination.	6	5	4	3	2	1
34	I do NOT have the basic skills to collaborate on an interdisciplinary team and conduct environmental justice research.	6	5	4	3	2	1
35	I have the basic skills to facilitate community discussions in response to environmental injustice.	6	5	4	3	2	1
36	I have the basic skills to educate community OR school groups about environmental justice issues.	6	5	4	3	2	1
37	I have the basic skills to establish collaborative relationships between environmental and social justice leaders in my community.	6	5	4	3	2	1
38	I have the basic skills to engage in multiple roles (e.g. consultant, educator, counselor) to address environmental injustice.	6	5	4	3	2	1
39	I have the basic skills to provide information to clients about how the environment may contribute to their presenting problems.	6	5	4	3	2	1
40	I have the basic skills to implement advocacy strategies (e.g. community education, community organizing) that address environmental justice issues.	6	5	4	3	2	1

Environmental Justice Advocacy Scale: Final Version (continued)								
#	Item	Scoring Scale						
	SKILLS (continued)							
41	I do NOT have the basic skills to participate in discussions about environmental justice.	6	5	4	3	2	1	
42	I have the basic skills to utilize community resources to obtain accurate information regarding environmental hazards.	6	5	4	3	2	1	
43	I do NOT have the basic skills to educate communities about the psychological consequences of exposure to environmental contaminants.	6	5	4	3	2	1	
44	I have the basic skills to educate my clients about psychological problems that may arise due to exposure to toxic substances.	6	5	4	3	2	1	
45	I have the basic skills to work with community groups to help them preserve cultural traditions that may be negatively impacted after exposure to environmental hazards.	6	5	4	3	2	1	
46	I have the basic skills to identify psychological problems that emerge due to exposure to environmental contaminants.	6	5	4	3	2	1	
47	I have the basic skills to help clients identify environmental conditions that may contribute to chronic stress.	6	5	4	3	2	1	

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