SCHOOL CLIMATE, OLDER ADULT CHARACTERISTICS, AND FULFILLMENT OF SCHOOL-BASED VOLUNTEER ROLES IN THE BALTIMORE EXPERIENCE CORPS STUDY

by
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Abstract

Objectives: The goals of this dissertation were (1) Chapter 2: To assess differences in perceptions of school climate from the perspective of students in grades 3-5, staff, and parents in a large urban school district; (2) Chapter 3: To evaluate staff- and student-rated school climate as a predictor of attendance (hours/week) and retention (total weeks) of older adults in time-intensive school-based volunteer roles; (3) Chapter 4: To evaluate demographic, health, and psychosocial characteristics of older adults as potential moderators of the association between staff-rated school climate and length of participation of older adults in school-based volunteer positions. Methods: Chapter 2: Using school climate survey data consisting of reports of students, parents, and staff from 112 schools, we assessed agreement between informant groups on dimensions of school climate using a multi-trait-multi-method matrix, and determined the magnitude and direction of differences between informants’ ratings using random-effects models. Chapter 3 and Chapter 4 used data from 25 schools and 298 older adults participating in the intervention arm of the Baltimore Experience Corps Study (BECS). Chapter 3: We evaluated eight dimensions of school climate rated by school staff and students in grades 3-5 as predictors of attendance and retention of older adult volunteers using linear mixed-effects and Cox regression models, respectively. Chapter 4: We created interaction terms for dimensions of school climate x older-adult characteristic and tested for effect modification of the associations between characteristic of older adults and climate of the schools and length of volunteer participation using Cox regression models. When interaction terms suggested potential effect modification ($p<0.10$), we re-fit the Cox
regression model, stratifying by the potential moderator. **Results: Chapter 2:** Correlations between informants tended to be strongest between staff-parent dyads and weakest for student-parent dyads. After adjusting for school-level demographic characteristics, students reported worse perceptions of school safety and better perceptions of their learning environments and parental involvement and communication compared to both parents and staff (p<0.01 for all). Parents gave the lowest ratings of parental involvement and communication, and staff gave the lowest ratings of the learning environment (p<0.01 for all). Overall satisfaction with schools was highest for staff and lowest for students (p<0.01 for all). **Chapter 3:** Volunteers in schools with worse staff ratings of school safety were less likely to continue volunteering than older adults in schools with better safety ratings (hazard ratio (HR): 0.65, 95% confidence interval (CI): 0.43, 0.98, p=0.04). Similar trends of shorter duration of volunteer participation were observed for older adults in schools with fewer resources (e.g., programs for students with learning disabilities, school supplies; HR=0.68, CI: 0.43, 1.06, p=0.09) and lower overall satisfaction (HR: 0.68, CI: 0.43, 1.07, p=0.09). Student ratings of school climate did not predict volunteer attendance or total weeks of participation. **Chapter 4:** When placed in schools with better staff ratings of overall satisfaction, volunteers who indicated feeling useful to their communities and society “sometimes” (hazard ratio (HR): 0.45, 95% confidence interval (CI): 0.23, 0.90, p=0.02) or “most of the time/all of the time” (HR: 0.23, CI: 0.06, 0.92, p=0.04) volunteered for more weeks (i.e., lower attrition) compared to those who indicated “rarely/never” feeling useful. Similarly, volunteers reporting “sometimes” feeling useful had lower attrition when placed in schools with higher staff-perceived safety (HR: 0.52, CI: 0.27, 0.99, p=0.05). There were no significant findings...
for effect modification by older adults’ demographic or health characteristics.

**Conclusions:** The results of this dissertation highlight a need for greater understanding of how different organizational qualities promote or impede volunteer participation of older adults and how characteristics of volunteers and organizations interact to predict volunteer attendance and sustained participation. Within school-based settings, assessment of school climate from multiple informants using valid and reliable instruments is critical to understanding climate-attendance and climate-sustained participation relationships of volunteers as well as individual-organization moderation of these relationships. Our results suggest that in order to maximize participation of older adult volunteers, programs should target organizations with high perceptions of safety and older adults with high perceptions of usefulness to their communities and society.

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Chapter 1: Introduction

Increased life expectancy coupled with decreased fertility rates over the last several decades have resulted in a population in which the mean age will continue to increase for the foreseeable future. This demographic change from just 5% of the world population over the age of 65 in 1950 to a projection of over 15% by 2050 (United Nations, 2005) will have enormous consequences for social, economic, and healthcare resources. Although aging is typically associated with decline in health and physical function, it is also associated with generativity, the desire to “give back” and to impart the wisdom acquired across a lifetime to future generations (Erikson, 1982).

As the proportion of individuals in the labor force continues to dwindle in comparison to the retired population, we are faced with an opportunity to redefine the roles and norms of older adults to address individual wellbeing and societal needs. Volunteerism is one potential avenue through which we may be able to capitalize on the generative motives of older adults to address both societal needs and physical and mental health needs of older adults (Fried, et al., 2004; Morrow-Howell, Hinterlong, Rozario & Tang, 2003). Understanding the characteristics of individuals and organizations that promote volunteerism among older adults is imperative to creating volunteer opportunities that meet the diverse needs and characteristics of an aging population.

The Experience Corps® program is a community-based, intergenerational volunteer program designed to provide meaningful roles for older adults in underserved elementary schools. Initial findings offer strong support for the mutual benefits of the program to both older adults and to children (Fried, et al., 2004; Rebok, et al., 2004). A
core feature of the Experience Corps program is a “sustained dose” of commitment to volunteering in the schools. Defined as at least 15 hours a week for the duration of two school years, this requirement is designed to optimize the benefits of the program to the older adults and to ensure the continuity and consistency that children need to build nurturing relationships with the older adults (Glass et al., 2004).

School climate, a summary measure for “the total environmental quality within a given school building” (Anderson, 1982), including social, psychological, academic, safety, and physical aspects of schools, is associated with student academic and behavioral outcomes, and is one of the target areas for improvement in the Experience Corps program. Preliminary results from the Baltimore Experience Corps Study (BECS) indicate that the presence of Experience Corps volunteers in elementary schools improved school climate (Rebok, Tan, Xue & Lu, 2009). However, the reverse relationship, looking at the role of school climate as a predictor of daily volunteer attendance and annual program retention among older adult volunteers has not yet been assessed. Furthermore, understanding how school-level factors interact with individual-level characteristics of older adults to promote or impede participation in school-based volunteer roles is important for optimizing adherence to the Experience Corps program and other similar programs. This dissertation proposes to examine the association between school climate and attendance (hours/week) and retention (total weeks) of older adults participating in BECS and to assess the role of older adults’ demographic, health, and psychosocial characteristics as moderators of these associations.

1.1. School Climate Background
1.1.1. Origins, dimensions and impacts
Originating from theories and models of organizational climate in the 1960s and from Bronfenbrenner’s Social Ecology Model in the 1970s, researchers and educators have recognized the importance of school-level physical, social, cultural, and health factors on student outcomes (Bronfenbrenner, 1977; Tagiuri, 1968; Zullig, Koopman, Patton, & Ubbes, 2010). The term “school climate” has gained acceptance as the contextual factor encompassing the “total environmental quality within a school building” (Anderson, 1982). In general, it describes the physical features of the school building, characteristics of students and staff, rules and social interactions between individuals, and beliefs and values of individuals within the school (Moos, 1974; Taguiri, 1968). Despite nearly universal agreement that the construct of school climate exists, tremendous variation in how this term is defined and measured challenges our ability to accumulate empirical evidence about its causes and outcomes. Over the past 30 years, several literature reviews have attempted to identify overlapping themes across studies on school climate. Based on these reviews (Cohen, McCabe, Michelli & Pickeral, 2009; Freiberg, 1998; Anderson, 1982), five common themes have emerged in the literature. In a 2010 publication, Zullig et al. named these five dimensions of school climate: 1) order, safety, and discipline; 2) academic outcomes; 3) social relationships; 4) school facilities (the physical environment within a school); and 5) school connectedness (engagement in and enthusiasm for school activities). Based on a factor analysis of items from widely cited scales in the literature, Zullig et al. (2010) confirmed these distinct constructs within school climate, but divided the domain “social relationships” into three more specific constructs: 6) social environment; 7) positive student-teacher relationships; and 8) perceived exclusion/privilege (equality of opportunity and attention given to students).
Although there is some agreement on dimensions that should be measured, many studies report additional dimensions, instruments used to measure these dimensions vary, and most studies report data from a single perspective (parent, student, or teacher) as opposed to having multiple informants.

What researchers can agree on is that a school-level contextual factor does exist, and that this factor influences behavior, attitudes, and performance of students and staff in schools. In one study of school climate, defined as healthy interpersonal dynamics, Hoy and Hannum (1997) identified six dimensions (academic emphasis, teacher affiliation, resource support, collegial leadership, principal influence, and institutional integrity) within school climate with which to evaluate student academic achievement. The findings suggested that schools in which students are motivated to learn (academic emphasis) and teachers are enthusiastic about teaching (teacher affiliation), and that have the physical resources to teach effectively (resource support) exhibit higher achievement in math, reading, and writing among middle-school students. Regarding institutional integrity, schools discouraging external involvement from the community and parents seemed to have a negative impact on academic achievement of students, although other studies have found that community and parental support is beneficial to teachers (Grayson & Alvarez, 2008). In another study, Gottfredson et al. (2005) examined the relationship between two dimensions of school climate, discipline management (perceived fairness and clarity of the rules), and psychosocial climate (morale, planning, organizational focus, and administrative leadership) and measures of school disorder. This study found that perceptions that rules within the school were clear and disciplinary measures were fair were associated with less student victimization by peers and less
delinquent behavior. Additionally, positive perceptions of psychosocial climate were associated with less crime and incivility toward teachers (Gottfredson et al., 2005). A third study found that greater sense of community, defined as the presence of networks of caring adults who interact regularly with students, was associated with lower levels of problem behavior among students (Bryk & Driscoll, 1988). An analysis of the National Education Longitudinal Study (NELs) data for 8th grade students found that better school climate, ascertained by student report of school spirit, positive relationships with teachers, and teacher enthusiasm and encouragement, was positively associated with formation of positive peer relationships and subsequent protection against alcohol use in high school (Coker & Borders, 2001). Among younger students, Esposito (1999) found that quality teacher–student relationships predicted school adjustment in kindergarten through second grade students in a low-income, urban, primarily African American community. Academically, student-teacher relationships also predicted mathematics and reading achievement scores among first-grade students and social skills in both first-grade and second-grade students (Esposito, 1999).

Evidence also supports the impact of school climate on teacher outcomes. In a systematic review, Cohen et al. (2009) found that in addition to predicting academic achievement, violence, and social-emotional development of students, positive school climate was predictive of teacher retention. School climate has also been linked to teacher “burnout,” a phenomenon in which teachers feel emotionally exhausted, experience diminished feelings of personal accomplishment, and exhibit depersonalization (i.e., disengagement) towards students (Maslach & Jackson, 1981). Grayson and Alvarez (2008) studied school climate and teacher burnout in 320 teachers from 17 schools in
Ohio and found that both worse student-peer relationships and less parent and community involvement were associated with more emotional exhaustion among teachers. Additionally, teacher perceptions of lower academic orientation of the schools, poorer teacher-student relationships and lower satisfaction with school administration were predictive of cynicism and negative attitudes towards students by teachers.

1.1.2 Issues of measurement

Early instruments used to measure school climate (Haplin & Croft, 1963) were developed from measures used to study climate in business and university settings (Pace & Stern, 1958; Stern, 1970). Since then, more than two-dozen instruments have been developed and used to measure school climate (Anderson, 1982; Ding, Lui, & Berkowitz, 2011; Zullig et al., 2010). Methods for measuring school climate are diverse, often using observations, interviews or questionnaires developed by individual school systems and study teams. As a result, few instruments measuring school climate have been evaluated for reliability and validity across a range of populations and settings (MMS Education, 2006). In a review of student-report school climate instrument development, Zullig et al. (2010) identified only three scales assessing school climate about which psychometric properties have been reported. The American Psychological Association (APA) has identified only three school climate instruments (distinct from those in Zullig et al. (2010)) that meet their established reliability and validity criteria (Gangi, 2010). Most recently, in 2011, the Social Development Research Group at Washington University, using more inclusive criteria than the APA, identified ten instruments for measuring some aspect of school climate that were reliable and valid (Haggerty, Elgin & Woodley, 2011). Of these, the Comprehensive School Climate Inventory (CSCI) was the only
instrument to measure a phenomenon explicitly referred to as school climate, and to do so from the perspectives of three different informant groups (parents, staff, and students) (Guo, Cho & Higgins, 2011). Currently, the CSCI appears to be the most scientifically sound instrument for measuring school climate.

Beginning in the 2004-2005 school year, the Baltimore City Public School System (BCPSS) began administering a school climate survey to all staff, students, and parents in Baltimore City public schools. Like the CSCI, this survey evaluates school climate from the perspective of multiple informants. The BCPSS School Climate Survey (BCPSSCS) is based on a survey developed by the Urban Institute as part of an evaluation of the “Bill & Melinda Gates Foundation’s High School Grants Initiative” (American Institution for Research, 2006). Over subsequent years the survey has continued to be modified to include dimensions deemed relevant to Baltimore City Public Schools (e.g., creativity and the arts). At face value, the items in the BSPSSCS appear to address the dimensions of school climate most commonly cited in other studies (Zullig et al., 2010); however, psychometric properties of the BCPSSCS have not yet been systematically examined.

1.1.3. Student, teacher, and parent agreement on measures of school climate

Parents, teachers, and students experience different types of interactions with physical and social environments within schools, and this further complicates the task of defining and measuring school climate. Students experience schools as recipients of services. They are expected to follow the academic schedule and adhere to the rules of conduct within their school building. Teachers experience schools as providers of services. Their role is to give academic instruction, guidance, and discipline within their
classrooms and schools. Whereas students and teachers experience their school environment on a regular basis, the experience of parents of students is more intermittent and less structured. Parents experience schools through parent-teacher conferences, volunteer opportunities, special events, and parent associations involved with the schools. Given the different roles in which students, teachers, and parents interact with the school environment, it is likely that they will have different experiences within the same climate and develop different feelings and perceptions toward the school environment. Furthermore, especially among early elementary age students, developmental stage and levels of maturity influence perceptions of experience resulting in differential reporting on the same aspects of the school environment between students of different ages within schools, and between students and adults. Thus, obtaining and comparing measures from multiple informants is important to fully understanding school climate. It allows researchers to triangulate across different points of view to understand how school climate might be experienced differently in each of these groups, and how this variation in perceptions of climate between types of informants might differentially impact individual outcomes. For example, teachers’ views of the learning climate in their schools may be more predictive of student academic outcomes than student perceptions, or vice versa. Similarly, parents’ perceptions of school safety could be most predictive of students transferring schools and teachers’ perceptions may be most strongly predictive of teacher absenteeism and turnover. Concerning social interactions, student report of peer relationships may be the most accurate predictor of bullying, victimization, and delinquency.

To our knowledge, the degree of agreement or disagreement between different
informant groups on multiple measures of school climate has not been assessed empirically. Understanding how staff, students, and parents differ in their perceptions of different aspects of school climate and whether one perspective is more or less powerful than the others in predicting a given outcome is an important step when developing interventions and choosing appropriate instruments to measure outcomes within schools.

1.2. Volunteerism and Healthy Aging in Older Adults
1.2.1 Conceptual framework for “successful” aging through volunteerism in older adults

The potential benefits of volunteerism among older adults can be understood through the key components of Rowe and Kahn’s framework for successful aging (Rowe & Kahn, 2000). This framework views successful aging as the convergence of three factors: avoidance of disease and disability, engagement with life, and high cognitive and physical function. Although this framework has been criticized for its strict criteria for successful aging (Richardson, Karunananthan & Bergman, 2011), volunteerism among older adults addresses the key components despite the controversial definition of success. Shifts in roles and responsibilities as individuals age, and associated reduction in social contact, cognitive stimulation, and physical activity, make the transition into retirement a period of high risk to successful aging (Morrow-Howell, 2003). Taking on the role of volunteer has the potential to address each of these factors in a way that promotes physical and mental health.

First, concerning social engagement, many people view retirement as a time to enrich their personal lives (Fried, Bandeen-Roche & Williamson, et al., 1996). However, removed from the workforce and often with fewer familial demands, retirees may find that opportunities for social engagement are less abundant. Volunteerism in a school-
based context provides older adults with an opportunity to take on new meaningful roles, maintain regular social contacts, and be involved in causes of personal value. Second, maintaining high cognitive and physical function can also be addressed through volunteerism. In the absence of employment, older adults may face fewer cognitive and physical challenges on a daily basis (Fried et al., 2004). Commitment to volunteer positions enables people to be involved in their communities and can have the additional benefit of substituting sedentary and solitary activities in the home for active engagement (Morrow-Howell, 2003). Additionally, responsibilities assumed by volunteers can provide cognitive stimulation through planning, organizing, mentoring, etc. (Morrow-Howell, 2003). Finally, with respect to avoidance of disease and disability, increased physical activity associated with maintaining an active and engaged lifestyle through volunteerism may improve health and positive affect, reducing the risk or delaying the onset of disease and disability (Barron, 2009; Morrow-Howell, 2010).

1.2.2. Literature review of observational studies

A growing body of literature from observational studies supports the association between volunteering in late-life and good physical and mental health. Large-scale national epidemiologic studies such as the Americans’ Changing Lives study (ACL), the Health and Retirement Study (HRS), and the Longitudinal Study of Aging (LSOA) offer the benefit of large samples representative of diverse ethnic, socioeconomic, and geographic backgrounds (House, Lantz & Herd, 2005; Juster & Suzman, 1995; US Department of Health and Human Services & National Center for Health Statistics, 1993). Outcomes of a study of spousal bereavement from the ACL suggest that volunteerism may buffer against depressive symptoms and have a positive effect on self-
efficacy among bereaved elders (Li, 2007). Another analysis of ACL data found fewer somatic symptoms among older adults involved in formal support roles, including volunteerism (Krause, Herzog & Baker, 1992). Other studies utilizing ACL data have found support for an association between volunteerism and fewer symptoms of depression (Musick & Wilson, 2003), improved trajectories of depressive symptomatology (Kim & Pai, 2010), improved physical health (Thoits & Hewitt, 2001), and greater wellbeing (Morrow-Howell, 2003) among older adults. In the LSOA, Harris et al. (2005) found that adults over the age of 70 who volunteered were at a reduced risk of mortality compared to those who did not volunteer. An analysis of HRS data found that social engagement, including volunteering after retirement in older adults, was associated with slower memory decline (Ertel, Glymour & Berkman, 2008). In a separate analysis of HRS data, Burr et al. (2011) reported a lower prevalence of hypertension among volunteers compared to non-volunteers. Volunteerism has also been linked to better self-rated health, greater life satisfaction (Morrow-Howell, 2003), better objectively measured physical function (Fried, Carlson & Freedman, et al., 2004; Lum & Lightfoot, 2005), and greater neurocognitive plasticity (Carlson et al., 2009).

1.2.3. Issues of measurement and causality in observational studies of volunteerism

That volunteerism among older adults promotes successful aging is supported by evidence from observational studies. However, the qualities of volunteer organizations, nature of volunteer roles, and characteristics of older volunteers that are causally related to avoidance of disease and disability, engagement with life, and high cognitive and physical function remain unclear. The diversity of volunteer opportunities and roles reported in the literature is immense. For example, opportunities may be prolonged or
limited to a single episode of engagement, time-intensive or more intermittent, skilled or unskilled, and religious or secular. Additionally, volunteerism is a dynamic rather than a stagnant process (Morrow-Howell, 2010). People may take on multiple positions and move in and out of different roles over time, making measurement of duration and nature of volunteer roles difficult. Furthermore, much of the literature on volunteerism comes from secondary data analyses of large national studies that did not necessarily focus on volunteerism, such as the ACL, the HRS, and the LSOA, limiting the scope of volunteerism-related questions that were asked. For example, several articles have been published using data from the ACL, in which participants were asked whether they volunteered within a certain time period and what the nature of the position was (Li, 2007; Morrow-Howell, 2003; Thoits & Hewitt, 2001). However, in this type of study, duration and time periods of commitment are rarely collected. Although these studies offer the benefit of large, representative samples, a lack of details regarding the nature, duration, and context of volunteer roles limits the interpretation of the reported associations. Furthermore, since recruitment of subjects was not conducted specifically in regard to volunteering, we are unable to sort out selection bias in our interpretation of the results. That is, we do not know whether people who are healthier choose to volunteer or whether volunteering actually causes people to be better off mentally and physically. Additionally, in the instances where time commitment data are collected, there is enormous variation in time commitment between and within people over time. This is especially evident in a study by Wilson and Musick (2000), in which women were interviewed about their volunteer commitments at six time points over the course of a decade. Although sustained volunteerism over the ten-year follow-up was associated with
better health and wellbeing, only 6% of respondents reported volunteering in the past year at every follow-up interview over the ten-year study period. Behavior of the remaining 94% of the sample was far more sporadic. Although data collection concerning time commitments in volunteer activities is rare, two studies have found that the more sustained a volunteer position is, the more likely it is to be associated with improved self-esteem and reduced negative affect (Musick & Wilson, 2003; Okun & Shultz, 2003).

1.2.4. Factors promoting or impeding volunteerism among older adults

If volunteerism can promote successful aging, altering health trajectories through volunteerism requires us to identify individuals who are experiencing, or at risk for decline, and to successfully enroll and retain them in volunteer positions. At present, volunteers are disproportionately female, Caucasian, middle to high income, and well-educated (Choi, 2003; McBride, 2007; Morrow-Howell, Hong & Tang, 2009). The racial disparity in volunteerism among older adults is likely a function of opportunities and rates at which different populations are asked to participate, rather than a function of interest in this type of civic engagement (Musick, Wilson, & Bynum, 2000). This is supported by higher ratings of motivation to volunteer among older African Americans compared to Caucasians despite lower rates of participation (Musick & Wilson, 2008). The gap between motivation and opportunity to volunteer among minority groups is particularly concerning because older adults from lower income and minority backgrounds and those with more functional dependency are at greater risk for adverse health outcomes and may benefit more from their experiences as volunteers (Morrow-Howell, Hinterlong, Rosario & Tang, 2003; Musick, Herzog & House 1999). Morrow-Howell and colleagues (2009) conducted a cross-sectional study of individuals currently
involved in volunteer work to study the individual- and organization-level factors associated with beneficial outcomes of volunteerism. Findings suggested that lower-income, lower-education, and single or widowed older adults perceived more benefit from their volunteer experiences. At an organizational level, quality of training, provision of a stipend, and tasks of the position were significantly associated with positive evaluation of volunteer experience (Morrow-Howell, Hong, & Tang, 2009). Finally, presenting volunteer opportunities to older adults as a chance to help others has proven to be more an effective recruitment and retention strategy than presenting them as opportunities for personal gain in physical and mental health (Morrow-Howell, Hong, & Tang, 2009).

1.2.5. Experience Corps core components and mutual benefits

The Experience Corps program is a community-based, intergenerational volunteer program established to provide meaningful roles for older adults in underserved elementary schools. The program is designed to be mutually beneficial to the older adults and the students and schools they serve. At present, Experience Corps is active in 19 cities across the US with over 2000 members (Experience Corps, 2014). The program operates by recruiting adults over the age of 60 to volunteer in underserved elementary schools in their communities. The Experience Corps program contains ten core features, derived from theories of aging and development, to meet both the needs of the older volunteers and the schools in which they serve. First, to address the generative motives of the volunteers, the roles within the schools are required to be meaningful and productive (Fried et al., 2004). Roles such as helping children with their literacy, math, and conflict-resolution skills have proven to be engaging and enriching to both older adults and
students (Rebok et al., 2004; Friedman & Fried, 1999). Second and third, features of diversity and flexibility in the availability of volunteer roles allow older adults to find opportunities that coincide with their own interests and skills. These first three features of the program also benefit the schools by allowing principals to create roles to address unmet needs within their schools. Fourth, a rigorous 30-hour training program for the volunteers helps ensure that they are knowledgeable regarding their roles and feel prepared for their responsibilities once they are placed in the schools. Additionally, it reassures school staff that the older adults have well-defined roles and adequate training to be high-impact, productive contributors rather than additional burdens to already strained school resources. Fifth, the establishment of teams of older adults with group leaders, coordinators, and periodic team meetings creates an infrastructure of support and guidance for the volunteers and organization for the program within the schools. The sixth and seventh features are a critical mass of 15-20 older adults per school and a sustained dose of at least 15 hours of volunteer work per week for the duration of two school years. These features are employed to create a sense of community and presence of the older volunteers in the schools and to establish a dose that is expected to be large enough to improve mobility, physical health, emotional wellbeing, cognitive function, and social engagement. A sustained presence also establishes the consistency that children need to develop trusting, reliable relationships with adults. Additionally, older adults are provided with a stipend to offset costs associated with their volunteer roles (e.g., transportation and appropriate attire). The eighth and ninth features are diversity of volunteers and growth and leadership opportunities for older adults participating in the program.
1.2.6. Experience Corps pilot outcomes

Between 1999 and 2003, the designers of Experience Corps conducted a 2-year randomized, controlled pilot study for preliminary evaluation of the impact of the Experience Corps program. Initial findings from the Baltimore Experience Corps pilot study (BECS pilot) offer strong support for the mutual benefits of the program to both older adults and children (Fried et al., 2004; Rebok et al., 2004). Within the BECS pilot, participants assigned to the intervention (volunteering in elementary schools) had increased physical, cognitive, and social activity, measures of strength, and social support, and less decline in walking speed at 8-month follow-up compared to participants assigned to the control condition (a one-year waitlist prior to volunteering) (Fried et al., 2004). Tan, et al. (2009) compared 71 women in the BECS pilot to 150 women in the Women’s Health and Aging Study (WHAS) with similar demographic and health characteristics. At a three-year follow-up, the BECS pilot women showed a sustained increase in physical activity while the WHAS participants declined slightly. In another comparison to a nationally representative non-volunteer sample, Hong et al. (2010) reported that volunteers across 17 Experience Corps sites in the US reported fewer depressive symptoms, less functional limitation, and better self-rated health over two years compared to older adults in the HRS during the same time period. With respect to recruitment and sustained commitment of at-risk individuals, the BECS pilot successfully recruited 169 older volunteers, half of whom had not volunteered within the past year. Retention rates for the trial were high: 91% for one year and 79% for two years (Martinez, Frick, and Glass et al., 2006). This is an indication that individuals from low-income, less-educated, minority populations with a range of physical and cognitive
abilities can be successfully recruited and retained in volunteer positions. However, we have a limited understanding of the individual- and school-level factors that explain variation in attendance and retention among BECS pilot participants. Such an understanding may be critically important to improving outcomes of older adults participating in the Experience Corps program.

1.3. Conceptual Framework for Attendance and Retention of Older Adults in School-based Volunteer Roles

In this dissertation, we examine school-level dimensions of climate as predictors of attendance (hours volunteered per week) and retention (total weeks) among BECS volunteers and evaluate demographic, health, and psychosocial characteristics of older adults as potential moderators of this relationship. Because this is the first study to evaluate organizational climate as a predictor of volunteer participation in a school-based setting, we rely on previous research on school climate and teacher attendance and retention to guide our hypotheses.

Based on similarities in stated motives for teachers and older adults choosing employment and volunteer positions in schools, it is possible that some of the reasons for absenteeism and attrition in older adult volunteers will be similar to those of teachers. Teachers typically choose their profession motivated by a desire to make a difference in students’ lives (Schwab, 2001). Similarly, most older adults participating in BECS stated generative motives when explaining their interest in participating (Fried et al., 2004). Considering the similar interest in helping a younger generation that draws both teachers and older adults to the schools, it is reasonable to believe that the same school-level factors that contribute to teacher absenteeism and turnover will also be associated with
lower attendance and retention among BECS volunteers.

Negative school climate is a well-known contributor to higher rates of teacher absenteeism and decisions to transfer to other schools or leave the profession altogether. Elementary schools with high proportions of low SES students tend to report measures indicating worse school climate and are associated with higher rates of teacher turnover (Cohen, 2009; Guin, 2004). However, negative correlations between measures of school climate and teacher turnover have also been reported (Borman, 2008; Guin, 2004). Also related to retention of teachers in schools with negative climate, teacher burnout syndrome is associated with increased likelihood of teachers moving to “better” schools or leaving the teaching profession altogether (Maslach & Jackson, 1981). Burnout has been consistently associated with greater absenteeism and teacher turnover as well as worse mental and physical health among teachers (Burke, Greenglass & Schwarzer, 1996; Leithewood, Menzies, Jantco & Leithwood, 1999). Based on these previously identified associations between school climate and attendance and retention of teachers, we believe that climate could be an important predictor of attendance and retention among older adults participating in school-based volunteer programs such as BECS.

In addition to school-level factors, individual-level characteristics associated with aging may add additional burden to older adults volunteering in schools, contributing to lower levels of attendance or discontinuation of their volunteer commitments. Older age, being single, and being of lower socioeconomic status are associated with a reduced likelihood of taking on volunteer roles in later life (Choi, 2003). Studies have also reported older adults in good health are more likely to volunteer than those in worse health (Caro & Bass, 1997; Fisher et al, 1991), and that decline in health is associated
with termination of volunteer roles (Chambre, 1993; Fischer & Schaeffer, 1993). However, results from the BECS pilot have shown that those in fair, good or excellent health all sustained volunteer roles (Martinez, Frick, Glass et al., 2006; Barron, et. al., 2009). There is also evidence that, despite declining health and functional ability, many older adults choose to continue with their volunteer commitments (Fischer, 1991).

Understanding how older adult characteristics interact with school climate to promote or impede adherence to volunteer roles is important to understanding how individuals can best be matched with volunteer environments in which they are most likely to sustain their commitment.

1.4. Specific Aims

**Aim 1:** To assess the magnitude and direction of differences in ratings of similar dimensions of school climate rated by students, staff, and parents within schools.

**Hypothesis 1:** The first aim of this dissertation was exploratory in nature. Therefore, there was no specific hypothesis. The magnitude of differences in ratings between informants was used to determine whether survey measures from different informants could be combined or should be kept as separate predictors in Aim 2 and Aim 3.

**Aim 2:** To evaluate the association between student- and staff-rated school climate, and attendance (hours/week volunteered) and retention (total number of weeks volunteered) among older volunteers in Baltimore City elementary schools. Specifically, we assessed eight dimensions of school climate as predictors of attendance and retention of volunteers during their involvement in BECS. **Hypothesis 2:** We hypothesized that older adults volunteering in schools with better climates (e.g., safety, availability of resources, positive learning environment) would volunteer more hours per week and would continue
to volunteer for a greater number of weeks than older adults in schools with worse climates.

**Aim 3:** To evaluate health, demographic, and psychosocial characteristics of older adults as potential moderators of the association between school climate and length of participation of older adults in school-based volunteer positions within BECS.

Specifically, we assessed health and demographic characteristics (income, education, marital status, self-rated health, and number of major morbidities) that have previously been demonstrated to predict volunteer behavior, as well as psychosocial characteristics (perceptions of usefulness to community and society) that have not been previously evaluated, as a potential moderators of the association between school climate and length of volunteer participation.

**Hypothesis 3:** We hypothesized that older adults’ perceptions of usefulness to their communities and society would interact with school climate, such that better school climate would be more strongly associated with more weeks of participation among individuals better perceptions of usefulness. Additionally, we hypothesized that demographic and health characteristics (higher educational attainment, being married, having higher income, having fewer major morbidities and having better self-perceived health) would act as moderators of the relationship between school climate and length of volunteer participation, such that positive perceptions of school climate would be more strongly associated with more weeks of participation among individuals with these characteristic
1.5. References


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Chapter 2: School Climate: Perceptual Differences between Students, Parents, and School Staff

Abstract

Objective: The purpose of this study was to assess agreement on ratings of school climate from the perspective of students, staff, and parents over a five-year period in a large urban school district. Methods: We assessed correlations between informant groups on dimensions of school climate with a multi-trait-multi-method matrix, and determined the magnitude and direction of differences between informants’ ratings using random-effects models. Results: Overall, correlations between informants tended to be strongest between staff-parent dyads and weakest for student-parent dyads. After adjusting for school-level demographic characteristics, students reported worse perceptions of school safety and better perceptions of their learning environments and parental involvement and communication compared to both parents and staff (p<0.001 for all). Parents gave the lowest ratings of parental involvement and communication, and staff gave the lowest ratings of the learning environment (p<0.001 for all). Overall satisfaction with schools was highest for teachers and lowest for students (p<0.001 for all). Discussion: These results demonstrate the importance of taking into account the type of informant when evaluating climate ratings within a school. Future studies should evaluate how scales intended to measure the same dimension of school climate from the perspective of different informants relate to specific student, teacher, and school outcomes.
2.1. Introduction

Researchers and educators have long recognized the influence of school-level physical, social, cultural, and health factors on student outcomes. Originating from theories and models of organizational climate (Tagiuri, 1968) and from Bronfenbrenner’s Social Ecology Model (Bronfenbrenner, 1977), the term “school climate” has gained acceptance as the contextual factor encompassing the “total environmental quality within a school building” (Anderson, 1982; Zullig, Koopman, Patton, & Ubbes, 2010). In general, school climate describes the physical features of the school building, social and demographic characteristics of students and staff, rules and social interactions between individuals, and beliefs and values of individuals within the school (Moos, 1974; Taguiri, 1968). A large body of evidence spanning several decades supports the impact of school climate on behavior, attitudes, and performance of students and staff (teachers and administrators) in schools (Bryk & Driscoll, 1988; Cohen McCabe Michelli, & Pickeral, 2009; Coker & Borders, 2001; Esposito, 1999; Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Grayson & Alvarez, 2008; Hoy & Hannum, 1997; Maslach & Jackson, 1981). Despite nearly universal agreement concerning the importance of school climate on student, teacher, and school outcomes, tremendous variation in how this term is defined and measured challenges our ability to compare evidence about its causes and outcomes across studies (Anderson, 1982; Ding, Lui, & Berkowitz, 2011; Gangi, 2010; Haggerty, Elgin, & Woodley, 2011; Zullig et al., 2010).

In addition, most school climate studies report data from a single perspective (student, staff, or parent) as opposed to having multiple informants. This further
complicates the task of defining and measuring school climate, as it is likely that students, staff, and parents have different types of experiences and interactions within the physical and social environment of the school. Students experience schools as recipients of services; they are expected to follow the academic schedule and adhere to the rules of conduct within their school building. Teachers and administrators experience schools as providers of services; their role is to give academic instruction, guidance, and discipline within their classrooms and schools. Whereas students and staff experience their school environment on a daily basis, the experience of parents is more intermittent and less structured. Parents experience schools through parent-teacher conferences, volunteer opportunities, special events, and parent associations involved with the schools. Given the different roles in which students, staff, and parents interact with the school environment, it is likely that they will have different experiences within the same climate and develop different feelings and perceptions toward the school environment.

Furthermore, especially among early elementary age students, developmental stage and levels of maturity influence perceptions of experience resulting in differential reporting on the same aspects of the school environment between students of different ages within schools, and between students and adults. Therefore, obtaining and comparing measures from multiple informants is important to fully understanding the climate of any particular school. It not only allows researchers to triangulate across different points of view to understand how school climate might be experienced differently in each of these groups, but also how this variation in perceptions of climate between types of informants might differentially impact individual outcomes.

Obtaining precise measurements is an important step towards understanding how
similar (or different) students, staff, and parents are in their perceptions of various aspects of school climate and whether one perspective is more or less powerful than the others in predicting a given outcome, and targeting interventions to improve specific outcomes within schools. However, to our knowledge, the degree of agreement between informants on many measures of school climate has not yet been assessed empirically. Current research on student, staff, and parent perceptions of bullying, victimization, and school safety suggest that there are more differences than similarities between informants (Bradshaw, Sawyer, & O’Brennan, 2007; Mishna, Pepler, & Wiender, 2006; Waasdorp et al., 2011). Studies examining agreement among multiple informants on dimensions of social networks in elementary schools have reported considerable variation between students and teachers, children and parents, and teachers and parents on measures of the same constructs. Concerning student-teacher agreement, Neal and colleagues (2011) found that the correlation between perceptions of peer relations (i.e., report of which students are friends with one another) was lower for teachers and students at lower grade levels and in larger classes. Additionally, among elementary school students, there was less agreement in classrooms with students exhibiting more aggressive behavior and more agreement in classrooms where teachers maintained an organized and productive learning environment (Neal, Capella, Wagner, & Atkins, 2011). This suggests that early elementary school-aged students and teachers in large, low-resource, low-achieving schools may experience dimensions of school climate related to social interactions differently.

As further evidence of the importance of obtaining measurements from multiple informants, Achenbach and colleagues (1987) conducted a meta-analysis of 116 studies
looking at concordance between multiple raters including children, teachers, and parents on perceptions of children’s behavioral and emotional problems. Mean correlations between parents and teachers, parents and children, and children and teachers were 0.27, 0.25, and 0.20 respectively, suggesting that parents’ and teachers’ perceptions of behavioral and emotional problems are very different from those of students (Achenbach, McConaughy, & Howell, 1987). Similarly, low levels of agreement between student and teacher perceptions of bullying (kappa=0.13) and victimization (kappa=0.12) within the school environment have also been reported (Wienke Totura, Green, Karver, & Gesten, 2009). The low level of agreement between students, staff, and parents on measures related to school climate further suggests that these informants experience their climate differently.

In addition to type of informant, several studies have found that both individual-level (e.g., race, gender) and school-level (e.g., school size, % free and reduced-price lunch) factors significantly impact perceptions of school climate (Griffith, 1997, 2000; Koth, Bradshaw, & Leaf, 2008). Griffith (1997) found that the majority of variance in school climate as perceived by parents and students occurs at the individual level, but that there is also a substantial amount of variance explained by between-school differences in climate. To date, we are unaware of any research examining perceptions of school climate at both the individual and school-level from the perspective of students, staff, and parents. The purpose of this study was to assess the magnitude and direction of differences in ratings of similar dimensions of school climate rated by students, staff, and parents within schools.
2.2. Methods

Sample

Each school year, all students grades 3-12, staff, and parents in the Baltimore City Public School System are asked to complete the Baltimore City Public School System Climate Survey (BCPSSCS) (see Measures) to assess their perceptions of various characteristics of the school at which they learn or work, or to which they send their children. The sample for this study included 112 Baltimore City elementary and elementary/middle schools administering the BCPSSCS between 2006-07 and 2010-11, and included data from all school staff (teachers, administrators, and assistant principals), all parents, and students in grades 3-5 who completed the BCPSSCS. Mean enrollment ranged from 382 students (all grades) (standard deviation, SD = 176) in 2006-07 to 421 students (SD=172) in 2010-11. On average, 93-94% of students at these schools received free or reduced-priced meals. Seventy-one schools (64.3%) were elementary schools, and 41 (35.7%) were elementary/middle.

Measures

*Baltimore City Public School System Climate Survey (BCPSSCS): Creation and evolution*

Beginning in the 2004-05 school year, the Baltimore City Public School System (BCPSS) began administering an annual survey to assess various elements of school climate across the entire school system from the perspectives of school staff, students in grades 3-12, and parents. This survey was developed by a panel of school research professionals from the Johns Hopkins Center for Prevention and Early Intervention, the Urban Institute, numerous community and advocacy groups, the Baltimore Teachers’ Union, and staff from the Division of Research, Evaluation, Assessment and
Accountability (DREAA), a department within the BCPSS responsible for external research, program evaluation, and student assessment (DREAA, 2008). The group identified important constructs to be assessed (e.g., school safety, learning environment, etc.) and selected survey items by evaluating existing surveys currently being used to measure school climate in some schools in Baltimore City. Particular consideration was given to items and constructs in the survey used by the Urban Institute team to measure school climate as part of the Bill and Melinda Gates Foundation's High School Grants Initiative to ensure continuity of this ongoing project in the school system (Education Policy Center, 2007).

To assess climate from the perspective of multiple informants, different versions of the survey were developed for staff, parents, students in grades 3-5, and students in grades 6-12 (not used in this study). Through several iterations of item selection, the committee agreed upon a set of items for each survey version based on clarity and simplicity of language, and face validity of the items intended to measure the following ten dimensions of school climate: 1) school safety; 2) creativity and the arts; 3) learning environment; 4) teachers; 5) educational values; 6) school physical environment; 7) school resources; 8) school administration; 9) parent-family involvement and 10) overall satisfaction with the school (Melick, Feldman, & Wilson, 2008).

Climate surveys are administered annually to staff, parents, and students in the BCPSS between January and March of each school year. To protect the anonymity of participants, personal identifiers beyond the school number and grade of the student/staff/child of parent were not collected (i.e., individual respondents cannot be linked across multiple years of data collection). Although most of the items in the climate surveys have
remained consistent across years, some items have been removed, modified, or added. Additionally, although some questions and dimensions are unique to particular forms of the survey (e.g., only staff are asked to rate statements regarding the school administration) and some questions are framed differently in each version of the survey (e.g., “I feel safe at this school” vs. “I feel safe sending my child to this school”), many items are designed to measure the same dimensions of school climate in parents, staff, and students. Below are brief descriptions of each for the three climate surveys:

**BCPSSCS, staff version:** School staff, including teachers, support staff, and assistant principals complete the survey (pencil-and-paper 2004-2008 and electronically thereafter). Staff members are asked to rate how much they agree/disagree with approximately 70 statements about their school on a 4-point Likert scale (1=strongly disagree to 4=strongly agree).

**BCPSSCS, parent version:** Surveys, accompanied by a letter of instruction and a postage-paid addressed envelope, are sent home with students. Parents are asked to rate how much they agree/disagree with approximately 45 statements about their child’s school on a 4-point Likert scale (1=strongly disagree to 4=strongly agree).

**BCPSSCS, student grade 3-5 version:** Student surveys are administered school-wide to all students on the same day and time designated by the school principal. Students grades 3-5 are asked to rate how much they agree/disagree with approximately 30 statements about their school on a 4-point Likert scale (1=strongly disagree to 4=strongly agree).

In this study we used survey data related to the four dimensions of school climate that were rated by all three informant groups: school safety, learning environment,
parental involvement and communication, and overall satisfaction in the 2006-07 through 2010-11 school years.

**Analysis**

*Construct validity of the BCPSSCS*

To test the construct validity of the dimensions of school climate and associated items in the BCPSSCS, we performed confirmatory factor analyses. Variance of factors was fixed to one, factor loadings were free parameters, and all factors were specified to be correlated. Based on the large sample size and observed normal distribution of many of the observed variables, we determined that maximum likelihood estimation procedure would be appropriate (Kline, 2010).

Since evaluation of the psychometric properties of the surveys was not a stated aim among the scale development panel members (Melick et al., 2008), the authors of this manuscript conducted a series of exploratory and confirmatory analyses of the BCPSSCS items to assess the fit of the data to several alternative models of school climate based on guidelines of Cabrera-Nguyen (2010) and compared the fit of these models to the survey structure currently used by BCPSS. Finding no significant improvement in model fit statistics ($\chi^2$, RMSEA, CFT/TLI, and SRMR) of the alternative factor structures, we retained the original BCPSSCS items and dimensions for all further analyses in this study (Hu & Bentler, 1999).

*Reliability of the BCPSSCS*

We assessed the internal consistency reliability of the dimensions of school climate for each version (student, staff, and parent) of the BCPSSCS in each school year using Cronbach’s alpha statistic.
Between-informant correlation

Our first aim was to assess the correlation between school-level mean ratings of climate from the perspective of students, staff, and parents. To accomplish our goal, we used a multi-trait multi-method matrix with Pearson correlation coefficients.

Multilevel modeling

Next, we assessed the magnitude and direction of differences between informant groups on ratings of each of the four dimensions of school climate in multi-level models adjusting for time (school year) and school-level demographic characteristics known to be associated with school climate (school size, school type, and proportion of students receiving free or reduced price meals). Although individual-level data were available to obtain parameter estimates within each school and school year, personal identifiers were not available to link individuals over time. We therefore applied a two-level random effects model with random intercepts for school and random slopes for time (school-year) (Diggle, Heagerty, Liang & Zeger, 2002, Chapter 9; Rabe-Hesketh & Skrondal, 2012, Chapter 4). We conducted separate models for each of the dimensions of school climate adjusting for the covariates listed above. To assess pair-wise differences between informant groups, we included two dummy variables for student and parent as fixed effects in the models with school staff as the reference group. To test the pair-wise differences in parent and student ratings we used a linear combination estimator. All statistical analyses were performed using Stata software, version 11 (StataCorp, College Station, TX).

2.3. Results

BCPSSCS reliability
Tables 1-4 display the survey items, factor loadings, and internal-consistency reliabilities for the four dimensions of school climate (school safety, learning environment, parental involvement and communication, and overall satisfaction) used in this study. Overall, the dimensions demonstrated good internal construct validity, evident in the high factor loadings for most items. Additionally, all four scales demonstrated good reliability. For measures of school safety and learning environment, staff members demonstrated the highest reliability (school safety: 0.91-0.93, learning environment: 0.83-0.87), followed by parents (school safety: 0.81-0.87; learning environment: 0.71-0.87). Reliability of overall satisfaction was similar for staff (0.86-0.88) and parents (0.87-0.91). On measures of parental involvement and communication, reliability was slightly higher for parents (0.91-0.94) compared to school staff (0.84-0.86). Students in grades 3-5 had the lowest reliabilities on all dimensions, but still remained in the fair to good range (school safety: 0.72-0.80; learning environment: 0.57-0.61; parental involvement and communication: 0.51-0.56; overall satisfaction: 0.71-0.76).

School-level informant correlations

Table 5 shows the Pearson correlation coefficients for school-mean ratings of school safety, learning environment, parental involvement and communication, and overall satisfaction for students, staff, and parents in each of the five school years under study. Overall, correlations between informants when rating the same dimension of school climate tended to be weakest between students and parents and strongest between staff and parents. Compared to other dimensions, school safety showed the strongest correlations among all informant dyads. Student-staff (0.65-0.78) and staff-parent (0.65-0.76) dyads showed similar levels of agreement, and were higher than student-parent
correlations (0.52-0.71). With regard to ratings of the learning environment within a school, student-staff (0.25-0.65) and student-parent (0.22-0.67) correlations were similar and lower than correlations between ratings of parents and staff (0.64-0.78), with the exception of 2010-11 in which the student-staff correlation (0.63) was similar to parent-staff (0.63) correlation, and higher than student-parent (0.52) correlations. Correlations between students and other informants on perceptions of school learning environment were notably lower in 2006-07 compared to all other years (student-staff: 0.25 in 2006-07, 0.46-0.65 in other years; student-parent: 0.22 in 2006-07, 0.45-0.67 in other years).

Correlations on school-mean ratings of overall satisfaction were similar between all informant dyads (student-staff: 0.53-0.65; student-parent: 0.51-0.65; staff-parent: 0.55-0.71). Ratings on perceptions of parental involvement and communication show the lowest correlation between informants, with student-parent (0.28-0.46) and student-staff (0.36-0.39) dyads having the weakest correlations. Correlations between parents and staff (0.44-0.58) were higher than student-staff and student-parent dyads, but still lower than parent-staff correlations on other dimensions of school climate assessed in this study.

**Multilevel modeling**

Table 6 shows the results for unadjusted and adjusted models of informant type as a predictor of school climate rating in a two-level random effects model for climate scores rated by individual informants within schools over the five-year study period. For school safety, in the adjusted models, ratings by students were lower than ratings by both staff (-0.15, \( p<0.001 \)), and parents (-0.16, \( p<0.001 \)). Parents had slightly more positive perceptions of school safety compared to staff members in the unadjusted model (0.05, \( p<0.001 \)), but this difference was no longer statistically significant in models that
adjusted for demographic characteristics of the school \((p=0.42)\). Ratings on perceptions of the school learning environment were higher for parents \((0.22, p<0.001)\) compared to staff. Students on average also rated the learning environment higher than both staff \((0.32, p<0.001)\) and parents \((0.01, p<0.001)\). Parents’ perceptions of parent-school involvement and communication were worse than those of staff members \((-0.10, p<0.001)\), whereas students’ perceptions of this dimension of school climate were better compared to both staff \((0.12, p<0.001)\) and parents \((0.22, p<0.001)\). Compared to school staff, parents \((-0.05, p<0.001)\) and students \((-0.10, p<0.001)\) reported worse overall satisfaction with their schools. Student overall satisfaction was also significantly lower than parents’ reported overall satisfaction \((-0.04, p<0.001)\).

2.4. Discussion

This study assessed dimensions of school climate as perceived by students in grades 3-5, staff, and parents in Baltimore City elementary and elementary/middle schools. Overall, we found moderate to high levels of correlation on perceptions of school safety, learning environment, parental involvement and communication, and overall satisfaction between students, staff, and parents. Agreement between informants on dimensions of school climate assessed in this study was notably higher than correlations between measures of peer relations, bullying/victimization, and child behavioral and emotional problems assessed by the same three informant groups in other studies (Achenbach et al, 1987; Neal et al., 2011; Wienke Totura et al., 2009). This higher level of agreement may be partially explained by the parallel nature of the surveys administered to the three informant groups. Alternatively, it could suggest that when asked to rate general perceptions about aspects of their school environments (as opposed
to individual-level behavior and experience), students, staff, and parents report more similar perceptions of dimensions of school climate. The highest correlations between informant dyads were observed for perceptions of school safety, particularly between student-staff and staff-parent dyads. Staff-parent ratings of school learning environment and parental involvement and communication tended to be more highly correlated than student-staff and student-parent correlations. This suggests that parents and teachers experience school climate in similar ways, but differently from how students experience and perceive the same environment.

With respect to differences in perceptions of school climate, we found that after controlling for school-level demographic factors known to influence school climate, students, parents, and staff within schools differed in their perceptions of school climate, and the magnitude and direction of these differences depended on the dimension of school climate being assessed. When evaluating school safety, students tended to give lower ratings compared to parents and staff, while parent and staff ratings of school safety did not differ significantly. This is consistent with previous research on exposure to violence in which parents report their children having lower levels of exposure compared to children’s self-reported exposure (Goodman, De Los Reyes, & Bradshaw, 2010; Kuo & Mohler, 2000), and with teachers having perceptions of lower levels of student victimization compared to students’ perceptions (Wienke Totura et al., 2009). Furthermore, a study of fourth- through sixth-grade students by Stockdale and colleagues (2002), found that students tended to report more bullying and worse perceptions of school safety compared to teachers and parents. That study also reported agreement between parents and teachers on the extent of bullying. Additionally, although teachers
and parents demonstrated greater awareness of a diverse spectrum of behaviors that constitute bullying compared to students, teachers and parents were less likely than students to report these behaviors taking place in the schools (Stockdale, Hangaduambo, Duys, Larson & Sarvela, 2002).

To our knowledge, this is the first study to compare ratings of learning environment, parental involvement and communication, and overall satisfaction between students, staff, and parents. In our sample, parents on average reported worse perceptions of parental involvement and school-parent communication, and teachers reported worse perceptions of the learning environment but greater overall satisfaction with their schools compared to parents and students. Overall, it appears that informants tend to give lower ratings to dimensions of climate that are most directly related to their behaviors (i.e., students: school safety, staff: learning environment, parents: parental involvement and communication). However, although these ratings of school climate are statistically significantly different between informants, we cannot determine from our results if these differences have meaningful implications for student and school outcomes. To address this question of practical importance, future studies should look at how scales intended to measure the same dimension of school climate from the perspective of different informants relate to academic and behavioral outcomes of students, as well as teacher quality and performance outcomes (turnover, experience, etc.). Nevertheless, these results demonstrate the importance of taking into account the type of informant when evaluating climate ratings within a school.

There are several limitations that should be addressed in future studies. Although the scales for different informants were intended to measure the same constructs, the
content of the surveys differed in potentially non-trivial ways. This is most evident in the parent, student, and staff scales for school safety. Based on factor analyses (results available upon request), students consistently rated items measuring delinquency (drug and alcohol use, bringing weapons to school, and fire-setting) and bullying/peer conflict (fighting among students and students picking on other students) differently from one another and from specific questions about perceptions of school safety (feeling safe at school and feeling safe going to and from school), suggesting three different constructs within the student version of the school safety scale. Staff, on the other hand, tended to rate all bullying, delinquency, and general safety items similarly, suggesting a single construct. Parents were not asked specific questions about within school bullying and delinquent behavior and therefore had only one “general perceptions of safety” dimension for comparison. Future studies may address this issue by comparing single items or groups of items asked uniformly across informant groups. Additionally, the reliability of students’ ratings of learning environment (0.57-0.61) and parental involvement and communication (0.51-0.56) were lower than we would have preferred. Despite the lower reliabilities, and considering the inherent problem of low reliability in the assessment of school climate by young children (Griffith, 1999; Brand et al., 2003), we chose to include these measures in our analyses as exploratory outcomes of dimensions of school climate that researchers have not previously reported on, as is standard in early stages of predictive or construct validation research (Nunally & Bernstein, 1994). However, future studies should seek to improve on these measures by incorporating more items into these scales (Nunally & Bernstein, 1994). Finally, the BCPSSCS and the Urban Institute climate survey from which most of the BCPSSCS
items were derived were developed specifically for use in Baltimore City Schools. Although many of the items are similar to those used by other researchers and school systems, the generalizability of our findings may be limited. Despite these limitations, this is the first study to compare ratings on multiple dimensions of school climate from the perspective of three different informants over a lengthy (five-year) follow-up.
2.5. References


Table 1. BCPSSCS School Safety Subscale: Survey items and internal consistency and factor loadings by informant group from 2006-07 to 2010-11

<table>
<thead>
<tr>
<th>Informant</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>07</td>
</tr>
<tr>
<td>Staff</td>
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<tr>
<td>Students picking on other students is not a problem at my school</td>
<td>.83</td>
<td>.81</td>
<td>.85</td>
</tr>
<tr>
<td>Fighting among students is not a problem at my school</td>
<td>.86</td>
<td>.85</td>
<td>.87</td>
</tr>
<tr>
<td>Students having weapons like knives or guns is not a problem at my school</td>
<td>.82</td>
<td>.81</td>
<td>.87</td>
</tr>
<tr>
<td>Student drug/alcohol abuse is not a problem at this school</td>
<td>.78</td>
<td>.77</td>
<td>.84</td>
</tr>
<tr>
<td>Students setting fires is not a problem at my school</td>
<td>.67</td>
<td>.69</td>
<td>.79</td>
</tr>
<tr>
<td>Outsiders getting into this school is not a problem</td>
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<td>.78</td>
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<tr>
<td>Student vandalism of school property is not a problem at my school</td>
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<td>.83</td>
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</tr>
<tr>
<td>Physical/verbal abuse of teachers is not a problem at my school</td>
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<td>.86</td>
<td>.88</td>
</tr>
<tr>
<td>I feel safe at this school</td>
<td>.86</td>
<td>.87</td>
<td>.87</td>
</tr>
<tr>
<td>Students feel safe at this school</td>
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<td>.90</td>
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</tr>
<tr>
<td>Students feel safe going to and from school</td>
<td>.84</td>
<td>.83</td>
<td>.87</td>
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<td>Parents</td>
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<tr>
<td>My child is safe going to and from school</td>
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</tr>
<tr>
<td>My child's school is making progress with school safety</td>
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<td>.89</td>
<td>.86</td>
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<tr>
<td>My child is safe at school</td>
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<tr>
<td>Students picking on other students is not a problem at my school</td>
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<tr>
<td>Fighting among students is not a problem at my school</td>
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<td>.67</td>
<td>.63</td>
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<tr>
<td>Students having weapons like knives or guns is not a problem at my school</td>
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<td>.90</td>
<td>.91</td>
</tr>
<tr>
<td>Student drug/alcohol abuse is not a problem at this school</td>
<td>.91</td>
<td>.92</td>
<td>.88</td>
</tr>
<tr>
<td>Students setting fires is not a problem at my school</td>
<td>.85</td>
<td>.85</td>
<td>.90</td>
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<tr>
<td>I feel safe going to and from school</td>
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<td>I feel safe at this school</td>
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Table 2. BCPSSCS Learning Environment Subscale: Survey items and internal consistency and factor loadings by informant group 2006-07 to 2010-11

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<tr>
<th>Informant</th>
<th>Number of Items</th>
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<th>2009</th>
<th>2010</th>
<th>2011</th>
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<td>.85</td>
<td>.86</td>
<td>.87</td>
<td>.87</td>
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<tr>
<td>Disruptions in the classroom do not get in the way of student learning</td>
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<td>.52</td>
<td>.55</td>
<td>.76</td>
<td>.76</td>
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</tr>
<tr>
<td>This school has clearly defined rules and expectations for student's behavior</td>
<td>.86</td>
<td>.86</td>
<td>.86</td>
<td>.92</td>
<td>.92</td>
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<td>The school rules are strictly enforced</td>
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<td>.92</td>
<td>.92</td>
<td>.94</td>
<td>.94</td>
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</tr>
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<td>Misbehaving students do not get away with it</td>
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<td>.81</td>
<td>.77</td>
<td>.83</td>
<td>.84</td>
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<tr>
<td>The school provides an orderly atmosphere for learning</td>
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<td>Students are rewarded for positive behavior</td>
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<td>.84</td>
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<td>.87</td>
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<tr>
<td>Teachers know most of the students at this school by name</td>
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<td>.39</td>
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<tr>
<td>Students talk to the teachers when they need help</td>
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<td>.78</td>
<td>.77</td>
<td>.79</td>
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<tr>
<td>Students get along well with each other</td>
<td>.83</td>
<td>.82</td>
<td>.83</td>
<td>.87</td>
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<tr>
<td>Students get along well with teachers</td>
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<td>.85</td>
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<td>.88</td>
<td></td>
</tr>
<tr>
<td>Teachers care about their students</td>
<td>.70</td>
<td>.71</td>
<td>.69</td>
<td>.69</td>
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<td></td>
</tr>
<tr>
<td><strong>Parents</strong></td>
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<td></td>
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<td></td>
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<td>Disruptive students are not a problem at my child's school</td>
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<td>.73</td>
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<td>The school provides an orderly atmosphere for learning</td>
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<td>.91</td>
<td>.84</td>
<td>.87</td>
<td>.88</td>
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</tr>
<tr>
<td>My child's school has clearly defined rules and expectations for student's behavior</td>
<td>.83</td>
<td>.84</td>
<td>.84</td>
<td>.88</td>
<td>.87</td>
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<tr>
<td>Misbehaving students do not get away with it</td>
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<td>.73</td>
<td>.53</td>
<td>.53</td>
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<tr>
<td>Students are rewarded for positive behavior</td>
<td>.82</td>
<td>.83</td>
<td>.88</td>
<td>.85</td>
<td>.86</td>
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<tr>
<td>Teachers at the school know my child well</td>
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<td>.80</td>
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<td>.87</td>
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<tr>
<td>Teachers care about my child</td>
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<td><strong>Students</strong></td>
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<td>.87</td>
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<td>My school has clear rules about how students should act</td>
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<td>.84</td>
<td>.84</td>
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<td>.83</td>
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<tr>
<td>Students are rewarded for acting good</td>
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<td>.64</td>
<td>.76</td>
<td>.75</td>
<td>.71</td>
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<td>Most teachers at the school know me by name</td>
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<td>.51</td>
<td>.62</td>
<td>.63</td>
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<tr>
<td>Students get along well with each other</td>
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<td>.73</td>
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<td>.71</td>
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<tr>
<td>Students get along well with teachers</td>
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<td>.72</td>
<td>.80</td>
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<td>.80</td>
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Table 3. BCPSSCS Parental Involvement and Communication Subscale: Survey items and internal consistency and factor loadings by informant group from 2006-07 to 2010-11

<table>
<thead>
<tr>
<th>Informant</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
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<th>'09</th>
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<td>.86</td>
<td>.85</td>
<td>.85</td>
<td>.86</td>
<td>.86</td>
</tr>
<tr>
<td>Parents or guardians are welcome at this school</td>
<td></td>
<td></td>
<td>.91</td>
<td>.91</td>
<td>.91</td>
<td>.92</td>
<td>.93</td>
</tr>
<tr>
<td>I have enough opportunity to talk with parents or guardians about students’ progress or problems</td>
<td></td>
<td></td>
<td>.84</td>
<td>.83</td>
<td>.84</td>
<td>.86</td>
<td>.87</td>
</tr>
<tr>
<td>When a student does something good at school, parents are informed</td>
<td></td>
<td></td>
<td>.88</td>
<td>.88</td>
<td>.89</td>
<td>.89</td>
<td>.89</td>
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<tr>
<td>When a student does something bad at school, parents are informed</td>
<td></td>
<td></td>
<td>.87</td>
<td>.85</td>
<td>.88</td>
<td>.88</td>
<td>.88</td>
</tr>
<tr>
<td>The school has effective ways of involving parents in management of students’ behavior</td>
<td></td>
<td></td>
<td>.92</td>
<td>.92</td>
<td>.91</td>
<td>.93</td>
<td>.93</td>
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<tr>
<td>The school tries to involve parents</td>
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<td></td>
<td>.92</td>
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<td>.91</td>
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<tr>
<td>I feel welcome at my child's school</td>
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<tr>
<td>Parents can use resources at my child's school when school is not in session</td>
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<td>.77</td>
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<td>I have the opportunity to join an organized parent group such as PTA/PTO</td>
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<tr>
<td>Parents have enough opportunity to provide input into the schools programmatic decisions</td>
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<td>.89</td>
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<tr>
<td>The school schedules meetings at times that are convenient for parents</td>
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<td>.82</td>
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<td>.85</td>
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<tr>
<td>I have enough opportunity to talk with teachers about my child’s progress or problems</td>
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<td></td>
<td>.82</td>
<td>.85</td>
<td>.86</td>
<td>.86</td>
<td>.87</td>
</tr>
<tr>
<td>When my child does something good at school, I hear about it from the school</td>
<td></td>
<td></td>
<td>.85</td>
<td>.85</td>
<td>.86</td>
<td>.86</td>
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<tr>
<td>When my child does something bad at school, I hear about it from the school</td>
<td></td>
<td></td>
<td>.67</td>
<td>.70</td>
<td>.74</td>
<td>.77</td>
<td>.76</td>
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<tr>
<td>The school has effective ways of involving parents in management of students’ behavior</td>
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<td>.90</td>
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<td>.91</td>
<td>.91</td>
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</tr>
<tr>
<td>The school tries to involve parents</td>
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<td></td>
<td>.91</td>
<td>.91</td>
<td>.92</td>
<td>.93</td>
<td>.92</td>
</tr>
<tr>
<td>My child's school is making progress with parental involvement</td>
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<td></td>
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<td>.92</td>
<td>.92</td>
<td>.92</td>
<td>.92</td>
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<tr>
<td>I was provided information on the school system's Parent Involvement Policy</td>
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<tr>
<td>I receive information from the school system about how my child is performing</td>
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<tr>
<td>Parents are actively involved in the School Improvement Team at my child's school</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If my child is having a problem at school, I know who I can talk to</td>
<td>.81</td>
<td>.82</td>
<td>.86</td>
<td>.88</td>
<td>.88</td>
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<td></td>
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<td>Students</td>
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<td>.54</td>
<td>.55</td>
<td>.56</td>
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<tr>
<td>My teacher talks to my parent or guardian</td>
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<td>.81</td>
<td>.81</td>
<td>.80</td>
<td>.80</td>
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<td></td>
</tr>
<tr>
<td>When I do something bad at school, my parent hears about it</td>
<td>.63</td>
<td>.66</td>
<td>.69</td>
<td>.68</td>
<td>.67</td>
<td></td>
<td></td>
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<tr>
<td>When I do something good at school, my parent hears about it</td>
<td>.66</td>
<td>.68</td>
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Table 4. BCPSSCS Overall Satisfaction Subscale: Survey items and internal consistency and factor loadings by informant group from 2006-07 to 2010-11

<table>
<thead>
<tr>
<th>Informant</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha Factor Loadings</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>'07</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I enjoy working at my school</td>
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</tr>
<tr>
<td>I would still choose to continue working at this school even if given the opportunity to transfer</td>
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</tr>
<tr>
<td>This school does a good job educating students</td>
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<td>.92</td>
</tr>
<tr>
<td>The classes I teach are interesting to me</td>
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</tr>
<tr>
<td>Staff members are recognized for good work</td>
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<tr>
<td>There is a great deal of cooperative effort among staff members</td>
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<td>.69</td>
</tr>
<tr>
<td><strong>Parents</strong></td>
<td></td>
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</tr>
<tr>
<td>This school does a good job educating students</td>
<td></td>
<td>.93</td>
</tr>
<tr>
<td>Overall, I am satisfied with my child's school</td>
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<td>.97</td>
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<tr>
<td>I would recommend this school to other parents</td>
<td></td>
<td>.83</td>
</tr>
<tr>
<td><strong>Students</strong></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>I like my school</td>
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<td>.71</td>
</tr>
<tr>
<td>I like my teachers</td>
<td></td>
<td>.69</td>
</tr>
<tr>
<td>I like my classes</td>
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<td>.69</td>
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</table>
Table 5. Correlation among school mean scores on dimensions of school climate from 2006-07 through 2010-11

<table>
<thead>
<tr>
<th></th>
<th>School Safety</th>
<th>Learning Environment</th>
<th>Parental Involvement and Communication</th>
<th>Overall Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td>1. Students</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>2. Staff</td>
<td>.65-.78</td>
<td>1.0</td>
<td>.25-.65</td>
<td>.36-.39</td>
</tr>
<tr>
<td></td>
<td>.52-.71</td>
<td>.65-.76 1.0</td>
<td>.22-.67 .64-.78 1.0</td>
<td>.28-.46 .52-.67 1.0</td>
</tr>
<tr>
<td>3. Parents</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

All p<0.001
Table 6. Random-effects models for informant type as predictors of dimensions of school climate

<table>
<thead>
<tr>
<th></th>
<th>Model 1 Unadjusted</th>
<th>Model 2*</th>
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<tr>
<td></td>
<td>Coefficient (SE), p-value</td>
<td>Coefficient (SE), p-value</td>
</tr>
<tr>
<td><strong>School Safety</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>-0.28 (0.006), &lt;0.001</td>
<td>-0.15 (0.010), &lt;0.001</td>
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<tr>
<td>Parent</td>
<td>0.05 (0.006), &lt;0.001</td>
<td>0.008 (0.010), 0.419</td>
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<tr>
<td>Parent (reference)</td>
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<tr>
<td>Student</td>
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<td>-0.16 (0.007), &lt;0.001</td>
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<tr>
<td><strong>Learning Environment</strong></td>
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<tr>
<td>Staff (reference)</td>
<td></td>
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</tr>
<tr>
<td>Student</td>
<td>0.22 (0.006), &lt;0.001</td>
<td>0.34 (0.010), &lt;0.001</td>
</tr>
<tr>
<td>Parent</td>
<td>0.16 (0.006), &lt;0.001</td>
<td>0.22 (0.010), &lt;0.001</td>
</tr>
<tr>
<td>Parent (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>0.06 (0.004), &lt;0.001</td>
<td>0.007 (0.007), &lt;0.001</td>
</tr>
<tr>
<td><strong>Parental Involvement and Communication</strong></td>
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<td></td>
</tr>
<tr>
<td>Staff (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>0.08 (0.005), &lt;0.001</td>
<td>0.12 (0.009), &lt;0.001</td>
</tr>
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<td>-0.10 (0.010), &lt;0.001</td>
</tr>
<tr>
<td>Parent (reference)</td>
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<td></td>
</tr>
<tr>
<td>Student</td>
<td>0.22 (0.004), &lt;0.001</td>
<td>0.22 (0.006), &lt;0.001</td>
</tr>
<tr>
<td><strong>Overall Satisfaction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>-0.11 (0.006), &lt;0.001</td>
<td>-0.10 (0.009), &lt;0.001</td>
</tr>
<tr>
<td>Parent</td>
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<td>-0.05 (0.009), &lt;0.001</td>
</tr>
<tr>
<td>Parent (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>-0.06 (0.004), &lt;0.001</td>
<td>-0.04 (0.006), &lt;0.001</td>
</tr>
</tbody>
</table>

*Adjusted for school size, school type (elementary/K-8), FARMS
Chapter 3: School Climate, Attendance, and Retention of Older Adults in School-based Volunteer Roles within the Baltimore Experience Corps Study

Abstract

Objectives: This study examined the relationship between school climate (e.g., safety, resources, learning environment) and average weekly attendance (hours/week) and retention (total weeks volunteered) of older adults in school-based volunteer roles within the Baltimore Experience Corps Study. Methods: Our sample included 298 older adults (age 67.3 ±5.9; 86.9% female; 91.3% African American). We assessed eight dimensions of school climate rated by school staff and students in grades 3-5 from 25 elementary and k-8 schools as predictors of older adult attendance and retention using linear mixed-effects and Cox regression models, respectively. Results: Volunteers in schools with worse staff ratings of school safety were less likely to continue volunteering than older adults in schools with better safety ratings (hazard ratio (HR): 0.65, 95% confidence interval (CI): 0.43, 0.98, p=0.04). Similar trends of shorter duration of volunteer participation were observed for older adults in schools with fewer resources (e.g., programs for students with learning disabilities, school supplies; HR=0.68, CI: 0.43, 1.06, p=0.09) and lower overall satisfaction (HR: 0.68, CI: 0.43, 1.07, p=0.09). Student ratings of school climate did not predict volunteer attendance or total weeks of participation. Discussion: Our results suggest that targeting organizations with positive staff-rated climates for older adult volunteer programs could have important implications for sustaining participation of older adult volunteers.
3.1. Introduction

A growing body of literature from observational studies supports the association between volunteering in late-life and positive physical and mental health outcomes. Findings from the Americans’ Changing Lives study (ACL; House, Lantz, & Herd, 2005) support an association between volunteerism and fewer symptoms of depression (Musick & Wilson, 2003), improved trajectories of depressive symptomatology (Kim & Pai, 2010), improved physical health (Thoits & Hewitt, 2001), and greater well-being (Morrow-Howell, Hinterlong, Rozario, & Tang, 2003) among older adults. In the Longitudinal Study of Aging (LSOA), Harris and Thoresen (2005) found that adults over the age of 70 who volunteered were at a reduced risk of mortality compared to those who did not volunteer. Analyses of the Health and Retirement Study (HRS) data have found that social engagement, including volunteering after retirement in older adults, was associated with slower memory decline (Ertel, Glymour, & Berkman, 2008) and lower prevalence of hypertension (Burr, Tavares, & Mutchler, 2011) among volunteers compared to non-volunteers. Volunteerism has also been linked to better self-rated health and greater life satisfaction (Morrow-Howell et al., 2003), better objectively measured physical function (Fried et al., 2004; Lum & Lightfoot, 2005), and greater neurocognitive plasticity (Carlson et al., 2009).

Although there is substantial support for better health and psychosocial outcomes among older adults reporting any volunteer involvement compared to those reporting no volunteer involvement, studies with more precise measures of volunteer commitment are less common. Among large epidemiologic studies, the ACL study provides the most detailed report of volunteer commitment, asking participants to identify specific
volunteer roles (e.g., religious, educational) assumed over the past twelve months and to report the number of hours contributed in that role on a 5-point scale (1= <20 hours to 5= >160 hours). One study using these data has reported a curvilinear relationship with more hours volunteered associated with better perceived health, up to 100 hours in the past year and declining thereafter (Van Willigen, 2000). In a second study, Musick, Herzog, and House (1999) found that older adults volunteering up to 40 hours in the past year had a reduced risk of mortality compared to those who did not volunteer, but volunteer activity in excess of 40 hours/year had no protective effect. Furthermore, older adults in the ACL who reported any volunteering in the past year at their baseline interview and again at three- and eight-year follow-up interviews (i.e., “sustained volunteerism”) had fewer depressive symptoms than older adults who never volunteered and those who discontinued volunteering (Musick & Wilson, 2003).

Other longitudinal studies have also assessed patterns of volunteering (continuous, inactive to active, etc.), based on dichotomous indicators of volunteering collected at multiple time points. In an eight year follow-up study of the HRS, Burtrica and colleagues found that the risk of quitting volunteering was highest in the first two years (35%) and drops substantially the longer a person remains an active volunteer (12% by 8-year follow-up) (Burtrica, Johnson, & Zedlewski, 2009). Conversely, initiation of volunteer activity among non-volunteers was low at first assessment and continued to decline over time. Furthermore, older adults who reported volunteering 50-99 and >200 hours in the past year were 7.9% and 17.3% more likely to still report volunteering at the next follow-up compared to those who volunteered <50 hours in the past year.
If volunteerism has the potential to improve physical and psychological outcomes in late-life, and if such benefits are dependent on time spent volunteering, it is important to understand the role of individual and contextual factors in promoting or impeding volunteerism. Gaining a better understanding of such factors will allow us to enroll and retain older adults in positions where they are most likely to sustain their commitment to volunteering. At the level of the individual, numerous studies have identified higher education, higher income, being married, female, Caucasian, and in good health as factors associated with volunteering (Choi, 2003; Hank & Erlinghagen, 2009; Morrow-Howell, 2010). Furthermore, Morrow-Howell, Hong, and Tang (2009) conducted a cross-sectional study of individuals currently involved in volunteer work to study the individual- and organizational-level factors associated with beneficial outcomes of volunteerism. Findings suggested that although volunteer prevalence is lower among lower-income, lower-education, and single or widowed older adults, these individuals perceived greater benefit from their volunteer experiences. These findings were replicated in a separate study of 13 geographically diverse volunteer programs for older adults (Hong & Morrow-Howell, 2013). At an organizational level, quality of training, provision of a stipend, role flexibility, physical accommodation, and recognition for services were significantly associated with positive evaluations of volunteer experiences (Morrow-Howell et al., 2009; Hong & Morrow-Howell, 2013). Finally, presenting volunteer opportunities to older adults as a chance to help others has been shown to be more effective for enrolling and retaining older volunteers than presenting them as opportunities for personal gain in physical and mental health (Barron et al., 2009). Furthermore, Hong and Morrow-Howell (2013) concluded that volunteers’ perceived
benefits are attributed more to intensity of the volunteer position and to program-level factors than to individual-level factors. To our knowledge, no other research to date has examined the association between the climate (i.e., physical, social, and administrative qualities) of volunteer organizations and participation of older adult volunteers.

The aims of this study were to evaluate the association between school climate and attendance (hours/week volunteered) and retention (total number of weeks volunteered) among older volunteers in Baltimore City schools. Specifically, we assessed eight dimensions of school climate as predictors of attendance and retention during their volunteer participation in the Baltimore Experience Corps Study. We hypothesized that older adults volunteering in schools with better climates (e.g., individuals feel safe in school, the school provides a positive learning environment) would volunteer more hours per week and would continue to volunteer for a greater number of weeks than older adults in schools with worse climates.

3.2. Methods

Sample

The study involved analysis of data from the 2006-2011 Baltimore Experience Corps Study (BECS) randomized controlled trial and used data from schools and older adults participating in the intervention arm of the trial (i.e., those volunteering in schools).

Schools

Twenty-five elementary and elementary/middle schools participated in BECS. Four of these schools participated in the BECS pilot study that preceded the full-scale trial and have been active in BECS since the 1999-2000 school year. The remaining 21 schools joined the study and began participating in BECS between 2006-07 and 2010-11.
school years. The student bodies of participating schools were predominantly African-American and low-income. Mean school enrollment was 402 students (all grades) (range: 150, 767). Further details of school characteristics can be found elsewhere (Fried et al., 2013; Rebok et al., 2004).

Older adults

Recruitment of older adult volunteers (over the age of 60 years) for BECS took place between 2006 and 2011. Recruitment strategies were designed to capitalize on older adults’ desire for meaningful activity and an opportunity to be generative (i.e., “give back”) in later years. Eligibility criteria for volunteers included a sixth-grade reading level (based on the Wide Range Achievement Test, 4th edition) (Wilkinson & Robertson, 2006) and no evidence of severe cognitive impairment (MMSE>23) (Folstein, Folstein & McHugh, 1975).

Overall, 2,600 older adults were screened, 799 attended a baseline evaluation, and 702 met eligibility criteria and consented to participate in the study (Fried et al., 2013). Of these, 352 were assigned to the intervention group. After randomization to intervention status, an additional 54 participants elected not to participate as volunteers. Therefore, the sample for this study included the 298 participants who were assigned to the intervention group and volunteered in their assigned school long enough to complete at least one week of volunteer service. Older adults entered the schools in four cohorts between the 2006-2007 and 2010-2011 school years. Volunteers’ time in the schools ranged from 1-132 weeks and spanned 1-3 academic years depending on the dates they entered the schools and the duration of their volunteering. In addition to older adults participating in the BECS randomized trial, older adults participating in the Experience
Corps program (but not the randomized trial) were present in schools, forming a critical mass of 15-20 older adult volunteers in each school (Glass et al., 2004).

Measures

Older adults

Attendance and retention

Participants randomly assigned to the BECS intervention condition were asked to commit to volunteering in their assigned school for two complete academic years. As part of fidelity monitoring efforts in BECS, volunteers completed weekly timesheets tallying the number of days and hours they were in the schools in the preceding week. From these timesheets we obtained two outcome measures: attendance and retention. Attendance referred to the number of hours older adults spent volunteering in their assigned schools, measured in weekly time increments. Retention referred to the total number of weeks older adults volunteered in their assigned schools, as assessed by the number of weekly timesheets completed.

Health and demographic measures

Upon enrollment in BECS, older adults completed baseline, 4-month, 12-month, and 24-month assessments of cognition, physical health and mobility, lifestyle activity, and psychosocial wellbeing. These assessments included an in-person interview as well as completion of a packet of self-administered questionnaires. For this study, we used demographic and health data collected at baseline.

Demographic characteristics:

Age, sex, race, income, marital status, and educational attainment were collected by self-report during the baseline assessment as part of the in-person interview.
Self-rated health:

As part of the self-administered questionnaire, older adults were asked: “Would you say your health is excellent, very good, good, fair, or poor?” Responses were made on a 5-point scale (0=poor to 4=excellent). This single question is commonly used in large-scale, longitudinal population based studies and has been shown to have acceptable validity among older adults (Mossey & Shapiro, 1982; Rohrer et al., 2009). This item has been shown to be reliable compared to other single-question measures of self-reported health status (Erikson et al., 2001).

Health conditions:

As part of the self-administered questionnaire, older adults were asked a series of yes/no questions indicating the presence or absence of 24 common medical conditions among older adults (e.g., hypertension, heart disease, stroke). We grouped responses into six categories of chronic conditions (cardiovascular disease, cancer, diabetes, stroke, hypertension, and arthritis) and summed the responses to create a variable indicating the total number of major morbidities (0-6).

Baltimore City School Climate Survey

Beginning in the 2004-2005 school year, the Baltimore City Public School System (BCPSS) began conducting an annual Climate Survey (BCPSSCS) to assess various elements of school climate across the entire school system from the perspectives of school staff, students, and parents (DREAA, 2008; Melick, Feldman & Wilson, 2008). We previously conducted a study of the reliability of this measure, as well as exploratory and confirmatory analyses of the BCPSSCS items to assess the convergent and divergent construct validity of the scales, and to make necessary refinements to the measurement
for research purposes (Ramsey, Spira, Parisi, & Rebok, under review). Here, we included school climate data from students in grades 3-5 and staff (all grades) versions of the BCPSSCS in the 2006-2007 to 2010-2011 school years and assessed the following dimensions: 1) Safety; 2) Learning Environment; 3) Teaching; 4) Physical Environment; 5) Parental Involvement and Communication; 6) Resources; 7) Administration; 8) Overall Satisfaction. A sample of questionnaire items and Cronbach’s alpha coefficients for each dimension of school climate assessed by students in grades 3-5 and staff is presented in Table 1. Overall, the dimensions assessed demonstrated good reliability.

**Analysis**

We first assessed baseline (prior to entering schools) health and demographic characteristics of older adults, including means and standard deviations of continuous variables and frequencies and percentages of binary and ordinal variables. Next, we conducted descriptive analyses of the volunteer patterns of older adults. Descriptive statistics for total number of weeks participating in BECS were obtained in the same manner as demographic and health characteristics. To assess the proportion of variance in hours volunteered per week attributed to within- and between-participant variation, we used a two-level mixed effects model with hours per week as the outcome, clustering by individual (Diggle, Heagerty, Liang & Zeger, 2002; Rabe-Hesketh & Skrondal, 2012, Chapter 2).

*Modeling dimensions of school climate as predictors of attendance (hours/week)*

To evaluate dimensions of school climate as predictors of older adult attendance in BECS, we used a random-intercept model with an exchangeable covariance structure, clustering by individual. Initially, we had intended to cluster by school as well, but a
likelihood-ratio test comparing models with and without nesting within schools confirmed that this additional complexity did not significantly improve the fit of the model (chi^2=0.04, df=1, p=0.83), and we therefore opted for a more parsimonious, two-level model with a random intercept for older adults (Rabe-Hesketh & Skrondal, 2012, p.88-89). To account for potential confounding we adjusted for school year and baseline demographic and health characteristics of older adults that are known to be associated with volunteer behavior among older adults, including age, education, marital status, income, self-rated health, and total number of major morbidities.

*Modeling dimensions of school climate as predictors of retention (weeks to drop-out)*

To evaluate school climate as a predictor of older adult retention in BECS, we modeled the number of weeks to dropout. We fit a series of Cox regression models with first week of volunteering as time of entry and last week of volunteering as the event of interest, and dimensions of school climate as the main predictors. As in the previous models, we adjusted for demographic and health characteristics of older adults (listed above) that are potential confounders. Additionally, since volunteers entered the schools in four cohorts between 2006-07 and 2010-11, we included a dummy variable for cohort to control for year of entry into BECS.

*Missing Data*

Missing data for older adults in this study were scarce. For data on income and major morbidities, 2.4% (n=7) of participants had missing data at baseline, and 3.4% (n=10) of older adults had missing data on self-rated health. We assumed these covariates to be missing at random (MAR) and imputed values using imputation methods (Rubin, 1987). There was no other missing data for older adults’ health and demographic
variables. There were no missing data for school mean climate scores among the 25 schools participating in BECS. All statistical analyses were performed using Stata software, version 13 (StataCorp, College Station, TX).

3.3. Results

Volunteers were predominantly female (86.9%), African American (91.3%), and most had more than a high-school education (53.7%) (Table 2). Participants’ mean age was 67.3 years and 28.5% were currently married. Median income was between $15,000 and $34,999; 26.5% of participants reported an annual income <$15,000, and 36.6% reported income >$35,000. The median number of major medical morbidities reported (cardiovascular disease, hypertension, diabetes, stroke, cancer, and arthritis) was 2 (interquartile range: 1, 3), and 89.9% of participants had a self-reported health of good, very good, or excellent.

On average, volunteers spent 12.9 hours a week in the schools with a within-person standard deviation of 6.2 hours/week and a between-person standard deviation of 2.6 hours/week (Table 3). Most of the variation in attendance was attributable to weekly fluctuations in volunteer hours within individual volunteers. Only 14.1% of the variance in volunteer hours per week was attributable to variation between subjects. Length of participation ranged from 1-132 weeks with a mean of 51.5 weeks and a median of 44 weeks. Approximately 10% of participants discontinued volunteering after 8 weeks, 25% by 28 weeks, 75% by 74 weeks, and 90% by 92 weeks.

Where student ratings of school climate were concerned, there was a significant association between older adults’ mean weekly hours of attendance and students’ overall satisfaction (Table 4). Specifically, greater overall satisfaction among students was
associated with lower mean weekly volunteer hours among older adults in adjusted analyses (1.06 fewer hours per 1 unit increase in overall satisfaction ratings, 95% CI: -1.94, -0.18). Among the eight dimensions of school climate rated by staff in BECS schools, there were no significant associations with mean weekly hours older adults volunteered in the unadjusted or adjusted models.

Better staff ratings of school safety were protective against volunteer attrition (Table 5). Comparing volunteers who participated for the same number of weeks, a one-unit increase in school safety ratings among staff (i.e., a change in school-mean staff ratings from “agree” to “strongly agree” that their school is a safe place) was associated with a 35% ((1-0.65) x 100) reduced risk of attrition ($p=0.04$) after adjusting for older adults’ health and demographic characteristics. Higher staff ratings of overall satisfaction (hazard ratio (HR): 0.68, 95% confidence interval (CI): 0.43, 1.07) and resources (HR: 0.68, CI: 0.43, 1.06) followed a similar pattern of being protective against volunteer attrition, although results did not reach statistical significance ($p>0.05$). There were no significant associations between older adults’ discontinuation of volunteering and staff ratings of the school physical environment, learning environment, teaching, administration, parental involvement and communication, or any of the four dimensions of school climate rated by students.

3.4. Discussion

In the present study, we evaluated the association between school climate and volunteer attendance and retention among older adults in a school-based, time-intensive volunteer program. Given the physical, cognitive, and psychosocial benefits of volunteering among older adults and the attenuation of these benefits when volunteering
is discontinued (Li & Ferraro, 2006), previous studies have identified sustained participation of older adults in volunteer positions as an important goal (Li, Chen, & Chen, 2013; Butrica et al., 2009). Overall, the results of this study suggest an association between staff perceptions of certain dimensions of school climate and length of participation, but not weekly hours of attendance among older adult volunteers in a school-based setting. Specifically, older adults in schools with better staff perceptions of school safety volunteered for a greater number of weeks than older adults in schools with worse staff perceptions of school safety. The same pattern was observed for staff perceptions of school resources and overall satisfaction, but these results did not reach statistical significance. Previous studies have identified ineffective management as a deterrent to volunteering in nonprofit organizations among older adults (Gonyea & Googins, 2007), and have found that better training and ongoing support (i.e., better resources) are associated with a more positive volunteer experience (Marrow-Howell et al., 2009). Our findings support and extend these outcomes within a school-based volunteer setting. Similar to “effective management” in other studies, we found that retention of older adults was higher in schools in which staff agreed that their school provided adequate resources for staff and students (e.g., services and procedures for helping students with learning disabilities, effective student support services).

Additionally, we believe this is the first study to identify perceptions of safety and overall satisfaction of staff as organizational qualities related to length of participation of older volunteers.

Considering the similar interest in helping a younger generation that commonly draws both teachers (Schwab, 2001) and older adults (Fried et al., 2004) to work or
volunteer in schools, it makes sense that the same school-level factors that contribute to
teacher turnover (i.e., negative school climate) would also be associated with higher
attrition among BECS volunteers. Negative school climate is a well-known contributor to
higher rates of teacher absenteeism and decisions to transfer to other schools or leave the
profession altogether (Borman & Dowling, 2008; Guin, 2004; Maslach & Jackson, 1981).
Furthermore, elementary schools with high proportions of low SES students, such as
those in BECS, tend to report measures indicating worse school climate and are
associated with higher rates of teacher turnover (Cohen, McCabe, Michelli, & Pickeral,
2009; Guin, 2004).

Our findings also suggest that the association between retention of volunteers in
school-based roles and staff perceptions of school climate does not extend to student
perceptions of the same dimensions. Consistent with this lack of support for student-rated
measures of school climate as predictors of older adults’ length of participation in
volunteer roles, our previous study of school climate in Baltimore City elementary
schools found that staff and students differ significantly in their perceptions of school
environment (Ramsey et al., under review). Given that students’ perceptions of school
climate differ from those of staff and parents, it is not surprising that students do not
follow the same predictive patterns as staff with respect to length of participation of older
adult volunteers. Furthermore, reliability of student-rated dimensions of school climate is
lower than those of staff members, potentially attenuating the predictive power of these
measurements (Table 1). Nevertheless, there was some suggestion from our findings that
volunteers spend fewer hours per week in schools where students report higher ratings of
overall satisfaction. These findings were unexpected, and replication with a more reliable
assessment tool is necessary before we can draw firm conclusions from this result.

Regarding the lack of association between staff ratings of school climate and hours per week volunteered by older adults, most of the variation in hours volunteered per week was attributable to fluctuations within individual volunteers from one week to the next. This suggests that although organization-level factors may be largely responsible for long-term continuation of volunteer roles, individual-level factors (e.g., health and psychosocial characteristics) may determine short-term participation patterns such as the number of hours volunteered in a given week.

This study had several limitations that should be considered when interpreting our outcomes. First, the sample of schools in this study was relatively homogenous, consisting of low-SES, urban, predominantly African-American elementary schools. Therefore, our findings may not generalize to populations with different geographic, racial, and economic characteristics. To address this concern, future studies should expand the sample of schools to capture greater diversity. Additionally, the school climate measure used in this study was based on a scale completed by staff and students in BECS schools and did not measure climate from the perspective of the older volunteers. Future studies could address this concern by administering a version of the school climate survey to older volunteers. Nevertheless, this study benefits from a large, longitudinal sample with detailed information about older adults’ volunteer patterns and organizational quality of the participating schools. Further, to our knowledge, it is the first study to evaluate the institutional factors associated with volunteering in a school-based setting, and it does so with a detailed measure of important components of school climate.
As has been stated previously by Hong and Morrow-Howell (2013), characteristics of organizations play an essential role in enrolling and retaining older adults in volunteer positions, and may be more mutable than individual characteristics in terms of policy and program development. Therefore, understanding qualities of organizations and individual-organization interactions is an important step in the process of promoting sustained volunteering among older adults. Identifying contextual factors that are predictive of sustained participation of volunteers may have implications for targeting schools (and other organizations) where Experience Corps and similar programs for older adults will thrive.
3.5. References


Table 1. BCPSSCS staff and student grades 3-5 climate dimensions, survey items and reliability from 2006-07 to 2010-11 (Ramsey et. al., under review)

<table>
<thead>
<tr>
<th>Climate Dimension</th>
<th>Students</th>
<th></th>
<th>Staff</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select survey items</td>
<td>Number of Items</td>
<td>Cronbach’s Alpha (2006-07 to 2010-11)</td>
<td>Number of Items</td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I feel safe at this school</td>
<td>7</td>
<td>0.72 to 0.80</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Fighting among students is not a problem at my school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students having weapons like knives or guns is not a problem at my school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Satisfaction</td>
<td></td>
<td>5</td>
<td>0.71 to 0.76</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>I like my school/ I enjoy working at my school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I would rather go to this school than another school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I learn a lot at my school/ This school does a good job educating students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning Environment</td>
<td></td>
<td>5</td>
<td>0.59 to 0.87</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Students get along well with teachers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This school has clearly defined rules and expectations for students’ behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The school provides an orderly atmosphere for learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Involvement and</td>
<td>3</td>
<td>0.51 to 0.56</td>
<td>6</td>
<td>0.84 to 0.86</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parents or guardians are welcome at this school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I have enough opportunity to talk with parents about students' progress or problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>When a student does something bad at school, parents are informed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td>6</td>
<td>0.93 to 0.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The school administration know what kind of school it wants and as community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>School administration supports the staff in performing their duties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The school administration works collaboratively with staff to solve problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources</td>
<td>8</td>
<td>0.82 to 0.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students have enough school supplies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The school has an effective Student Support Team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The school has clear procedures for getting help for students with suspected learning problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Environment</td>
<td>7</td>
<td>0.55 to 0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>---</td>
<td>-------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The school building is clean and well maintained</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The temperature in this school is comfortable all year round</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are a lot of broken windows, doors or desks at this school</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching</th>
<th>7</th>
<th>0.89 to 0.91</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers care about their students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers make expectations for making instructional goals clear to students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers provide extra academic help to students who need it</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demographic</td>
<td>N (%) or Mean (SD)</td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>67.3 (5.9)</td>
<td></td>
</tr>
<tr>
<td>Sex (female)</td>
<td>259 (86.9)</td>
<td></td>
</tr>
<tr>
<td>Race (African American)</td>
<td>272 (91.3)</td>
<td></td>
</tr>
<tr>
<td>Education (&gt; high school)</td>
<td>160 (53.4)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>85 (28.5)</td>
<td></td>
</tr>
<tr>
<td>Median Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$15,000</td>
<td>79 (26.5)</td>
<td></td>
</tr>
<tr>
<td>$15,000 - $35,000</td>
<td>110 (36.9)</td>
<td></td>
</tr>
<tr>
<td>&gt;$35,000</td>
<td>109 (36.6)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health</th>
<th>N (%) or Median (Interquartile range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # Major Morbidities¹ (0-6)</td>
<td>2 (1, 3)</td>
</tr>
<tr>
<td>Self-rated Health</td>
<td></td>
</tr>
<tr>
<td>poor</td>
<td>1 (0.34)</td>
</tr>
<tr>
<td>fair</td>
<td>29 (9.7)</td>
</tr>
<tr>
<td>good</td>
<td>109 (36.6)</td>
</tr>
<tr>
<td>very good</td>
<td>136 (45.6)</td>
</tr>
<tr>
<td>excellent</td>
<td>23 (7.7)</td>
</tr>
</tbody>
</table>

¹-Cardiovascular disease, hypertension, cancer, stroke, diabetes, and arthritis
Table 3. Descriptive statistics for attendance (hours/week) and retention (total weeks) of BECS volunteers

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Standard Deviation (SD) (% Variance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
</tr>
<tr>
<td></td>
<td>12.9 (0.2)</td>
</tr>
<tr>
<td>Total weeks in BECS</td>
<td>Mean (SD), [min, max]</td>
</tr>
<tr>
<td>% Retention of volunteers</td>
<td>Number of weeks in BECS</td>
</tr>
<tr>
<td>90</td>
<td>8</td>
</tr>
<tr>
<td>75</td>
<td>28</td>
</tr>
<tr>
<td>50</td>
<td>44</td>
</tr>
<tr>
<td>25</td>
<td>73</td>
</tr>
<tr>
<td>10</td>
<td>92</td>
</tr>
</tbody>
</table>
Table 4. Student and staff perceptions of school climate as predictors of attendance of BECS volunteers

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted model&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Adjusted model&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B [95% CI]</td>
<td>B [95% CI]</td>
</tr>
<tr>
<td><strong>Students grades 3-5</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>safety</td>
<td>0.29 [-0.25, 0.82]</td>
<td>0.31 [-0.23, 0.85]</td>
</tr>
<tr>
<td>Parental Involvement and Communication</td>
<td>-0.16 [-1.19, 0.86]</td>
<td>-0.12 [-1.15, 0.91]</td>
</tr>
<tr>
<td>Learning Environment</td>
<td>-0.45 [-1.28, 0.38]</td>
<td>-0.42 [-1.25, 0.42]</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>-1.10&lt;sup&gt;3&lt;/sup&gt; [-2.00, -0.23]</td>
<td>-1.06&lt;sup&gt;3&lt;/sup&gt; [-1.94, -0.18]</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>0.10 [-0.50, 0.70]</td>
<td>0.12 [-0.48, 0.72]</td>
</tr>
<tr>
<td>Learning Environment</td>
<td>0.10 [-0.54, 0.73]</td>
<td>0.10 [-0.54, 0.73]</td>
</tr>
<tr>
<td>Teaching</td>
<td>-0.09 [-1.01, 0.83]</td>
<td>-0.08 [-1.00, 0.85]</td>
</tr>
<tr>
<td>Physical Environment</td>
<td>-0.13 [-0.65, 0.38]</td>
<td>-0.11 [-0.63, 0.40]</td>
</tr>
<tr>
<td>Parental involvement and communication</td>
<td>0.20 [-0.59, 1.00]</td>
<td>0.24 [-0.56, 1.03]</td>
</tr>
<tr>
<td>Resources</td>
<td>0.10 [-0.78, 0.59]</td>
<td>-0.09 [-0.78, 0.59]</td>
</tr>
<tr>
<td>Administration</td>
<td>-0.41 [-0.92, 0.10]</td>
<td>-0.41 [-0.92, 0.10]</td>
</tr>
<tr>
<td>Overall Satisfaction</td>
<td>-0.52 [-1.13, 0.09]</td>
<td>-0.51 [-1.12, 0.10]</td>
</tr>
</tbody>
</table>

1- adjusted for number of weeks in trial and school-year
2- model 1 + age, marital status, education, income, self-rated health, and number of major morbidities
3- <i>p</i>&lt;0.05
Table 5. Hazard ratios for student and staff perceptions of school climate as predictors of retention of older adult volunteers participating in BECS

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted model(^1)</th>
<th></th>
<th>Adjusted model(^2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard ratio</td>
<td>[95% CI]</td>
<td>Hazard ratio</td>
<td>[95% CI]</td>
</tr>
<tr>
<td><strong>Students 3-5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>1.00</td>
<td>[0.70, 1.45]</td>
<td>1.00</td>
<td>[0.69, 1.47]</td>
</tr>
<tr>
<td>Parental Involvement and Communication</td>
<td>0.92</td>
<td>[0.40, 2.10]</td>
<td>0.92</td>
<td>[0.40, 2.13]</td>
</tr>
<tr>
<td>Learning Environment</td>
<td>0.75</td>
<td>[0.39, 1.43]</td>
<td>0.73</td>
<td>[0.38, 1.40]</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>1.10</td>
<td>[0.57, 2.14]</td>
<td>1.09</td>
<td>[0.55, 2.16]</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>0.64(^3)</td>
<td>[0.43, 0.94]</td>
<td>0.65(^3)</td>
<td>[0.43, 0.98]</td>
</tr>
<tr>
<td>Learning Environment</td>
<td>0.6</td>
<td>[0.42, 1.08]</td>
<td>0.69</td>
<td>[0.43, 1.12]</td>
</tr>
<tr>
<td>Teaching</td>
<td>0.63</td>
<td>[0.36, 1.12]</td>
<td>0.62</td>
<td>[0.35, 1.13]</td>
</tr>
<tr>
<td>Physical Environment</td>
<td>0.76(^4)</td>
<td>[0.55, 1.05]</td>
<td>0.78</td>
<td>[0.56, 1.09]</td>
</tr>
<tr>
<td>Parental involvement and communication</td>
<td>0.87</td>
<td>[0.50, 1.51]</td>
<td>0.88</td>
<td>[0.50, 1.54]</td>
</tr>
<tr>
<td>Resources</td>
<td>0.67(^4)</td>
<td>[0.43, 1.05]</td>
<td>0.68(^4)</td>
<td>[0.43, 1.06]</td>
</tr>
<tr>
<td>Administration</td>
<td>0.83</td>
<td>[0.59, 1.16]</td>
<td>0.84</td>
<td>[0.59, 1.19]</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>0.674</td>
<td>[0.43, 1.04]</td>
<td>0.684</td>
<td>[0.43, 1.07]</td>
</tr>
</tbody>
</table>

1- adjusted for cohort  
2- model 1 + age, marital status, education, income, self-rated health, and number of medical conditions  
3- p<0.05  
4- p<0.10
Chapter 4: School Climate, Older Adult Characteristics, and Fulfillment of School-based Volunteer Roles within the Baltimore Experience Corps Study

Abstract

Objectives: To evaluate older adults’ demographic and health characteristics, and perceptions of usefulness to their communities and society as potential moderators of the association between staff-rated school climate and dropout of older adults in school-based volunteer positions. Methods: Our sample included 298 older adults (age 67.3 ±5.9; 86.9% female; 91.3% African American) and 25 elementary and k-8 schools participating in the treatment arm of the Baltimore Experience Corps Study. We assessed interactions between three dimensions of school climate (safety, resources, and overall satisfaction) rated by school staff with older volunteers’ demographic and health characteristics, and perceptions of usefulness to their communities and society as predictors of dropout using Cox regression models. When interaction terms suggested potential effect modification (p<0.10), we re-fit the Cox regression model, stratifying by the potential moderator. Results: Among older adults who indicated that they feel useful to their communities and society “most of the time” or “all of the time,” a one unit increase in school safety rating among staff was associated with a 68% reduced risk of dropout (p<0.01), and a one unit increase in staff ratings of overall satisfaction was associated with a 69% reduced risk of dropout (p<0.01) after adjusting for date of entry into the study, health, and demographic characteristics of older adults. There was no significant effect modification by demographic or health characteristics of older adults. Discussion: Overall, results suggest that older adults’ perceptions of usefulness in social
contexts may moderate the association between school climate and length of volunteer participation in time-intensive school-based volunteer roles.
4.1. Introduction

There is a large body of evidence from ethnically, geographically, and socioeconomically diverse populations supporting the association between volunteerism and physical and mental well-being of older adults (Li & Ferraro, 2005, 2006; Li, 2007; Lum & Lightfoot, 2005; Kim & Pai, 2010; Thoits & Hewitt, 2001; Morrow-Howell et al., 2003; Harris & Thoresen, 2005; Ertel, Glymour, & Berkman, 2008). Furthermore, within samples of older adults engaged in volunteer activities, cross-sectional studies have found a dose-dependent relationship between the number of hours volunteered and physical and mental health benefits (Musick, Herzog, & House, 1999; Van Willigen, 2001; Windsor, Anstey, & Rodgers, 2008). Studies have also examined longitudinal patterns of volunteerism and associated health outcomes among older adults. In an eight-year follow-up of the Americans’ Changing Lives study, Musick and Wilson (2003) found that older adults with patterns of sustained volunteering, defined as those reporting being active volunteers in the past year at their initial interview and at both of two follow-up interviews, reported fewer depressive symptoms than older adults with no or intermittent volunteer history.

Given the apparent benefits of volunteering to physical and mental well-being of older adults, it is important to understand the characteristics of individuals and organizations that influence patterns of volunteer participation. Many studies have identified characteristics of older adults that are associated with a greater or lesser odds of volunteer participation. Older age, being single, and being of lower socioeconomic status have been found to be associated with a reduced likelihood of taking on volunteer roles in late life (Choi, 2003). Studies have also reported that older adults in good health are more
likely to volunteer than those in worse health (Caro & Bass, 1997; Fischer, Mueller, & Cooper, 1991), and that decline in health is associated with termination of volunteer roles (Chambre, 1993; Fischer & Schaeffer, 1993). However, results from the Baltimore Experience Corps Pilot study have shown that those in fair, good, and excellent health could all sustain their commitments to volunteer roles (Martinez et al., 2006; Barron, et. al., 2009). Furthermore, there is some evidence that, despite declining health and functional ability, many older adults choose to continue with their volunteer commitments (Fisher et al, 1991).

In addition to individual characteristics of older adults, several studies have examined the impact of environmental qualities (i.e., climate) of volunteer organizations on participation of older adult volunteers. At an organizational level, studies have identified quality of training, provision of a stipend, role flexibility, physical accommodation, and recognition for services as being significantly associated with positive evaluation of volunteer experience (Morrow-Howell, Hong & Tang, 2009; Hong and Morrow-Howell, 2013). Further, volunteers who perceived more benefit from their experience also spent more time volunteering (Hong and Morrow-Howell, 2013). Additionally, presenting volunteer opportunities to older adults as a chance to help others has proven to be a more effective recruitment and retention strategy than presenting volunteer programs as opportunities for personal gain in physical and mental health (Morrow-Howell et al., 2009). In a recent study, Ramsey and colleagues found better staff perceptions of school safety, resources, and overall satisfaction to be associated with greater volunteer retention, measured as the total number of weeks older adults
participated as volunteers in an elementary school setting (Ramsey, et al., in preparation).

Although individual and organizational characteristics have both been identified as potential contributors to older adult volunteer participation and outcomes, there has been very little research on interactions between individual and organizational variables and volunteering outcomes. Morrow-Howell and colleagues (2003), identified age as a moderator of the association between volunteering and perceived well-being of older adults, but found no significant effect for interactions between volunteering and gender or race on well-being (Morrow-Howell, Hinterlong, Rozario, & Tang, 2003). They also identified a positive association between number of hours volunteered, and better self-rated health and lower levels of depression (Morrow-Howell et al., 2003). To our knowledge, no study to date has assessed interactions between characteristics of older adults and the environments in which they volunteer as predictors of length of volunteer participation.

The aim of this study was to evaluate health, demographic and psychosocial characteristics of older adults as potential moderators of the association between school climate and length of participation of older adults in school-based volunteer positions within the Baltimore Experience Corps Study (BECS). Specifically, we assessed health and demographic characteristics (income, education, marital status, self-rated health, and number of major morbidities) that have previously been demonstrated to predict volunteer participation, as well as older adults’ perceptions of usefulness to their communities and society, which has not been previously evaluated, as potential moderators of the association between school climate and length of volunteer participation.
participation. We hypothesized that demographic and health characteristics will act as moderators of the relationship between school climate and length of volunteer participation such that higher educational attainment, being married, having higher income, having fewer major morbidities and having better self-perceived health will interact with school climate, such that positive perceptions of school climate will be more strongly associated with more weeks of volunteer participation among individuals with these characteristics. Furthermore, we hypothesized that perceptions of usefulness to one’s community and society will interact with school climate such that older adults who believe they are more useful will volunteer for longer periods of time when place in schools with better school climate.

4.2. Methods

Sample

Schools

The sample for this study included 25 elementary schools that participated in the Baltimore Experience Corps Study (BECS) between 2006 and 2011. Students at these schools were predominantly African American and low-income, and each school had a mean of 402 students enrolled (range: 150, 767). Further details of the schools and sampling procedure can be found elsewhere (Fried et al., 2013; Rebok et al., 2004).

Older adults

Recruitment of older volunteers (over the age of 60 years) for BECS took place between 2006 and 2011. Recruitment strategies were designed to capitalize on older adults’ desire for meaningful activity and a desire to be generative, or to give back to the community (Erikson, 1998). Eligibility criteria for older volunteers included a sixth-grade
reading level (based on the Wide Range Achievement Test, 4th edition; Wilkinson & Robertson, 2006) and no evidence of severe cognitive impairment (Mini Mental Status Examination >23) (Folstein, Folstein & McHugh, 1975). Overall, 702 older adults met eligibility criteria and consented to participate in BECS. Of these, 352 were randomly assigned to the intervention arm of the study and were assigned to volunteer in the schools (Fried et al, 2013). However, 54 of the adults assigned to volunteer dropped out of the trial after randomization but prior to being placed in a school. Therefore, the sample for this study included the 298 participants who were randomly assigned to the intervention group and participated as a volunteer in their assigned school for at least one week.

**Measures**

*Baltimore City School Climate Survey, staff version*

Each school year, the Baltimore City Public School System (BCPSS) administers a Climate Survey (BCPSSCS) to all staff members (teachers, support staff, and assistant principals) to assess various dimensions of school climate across the entire school system (DREAA, 2008; Melick, Feldman & Wilson, 2008). School staff are asked to rate how much they agree/disagree with approximately 70 statements about their school on a 4-point Likert scale (1=strongly disagree to 4=strongly agree). The scale as a whole is intended to measure ten different dimensions of school climate. In this study, we used the following three dimensions, previously identified as primary predictors of duration of volunteer participation (Ramsey et al., in preparation):

*Safety (α=0.91-0.93; Ramsey et al., under review):* School staff were asked to rate their level of agreement with 12 statements regarding the safety of their school (e.g.,
“students feel safe at this school”, “fighting among students is not a problem at this school”, “outsiders getting into this school is not a problem”).

*Resources (α=0.93-0.95; Ramsey et al., under review):* School staff were asked to rate their level of agreement with 8 statements concerning the availability of academic and social-emotional support resources in their school (e.g., “The school offers sufficient in-service training for staff regarding instructional practices”, “the school has clear procedures for getting help for students with suspected learning problems”, “students have enough school supplies”).

*Overall satisfaction (α=0.86-0.88; Ramsey et al., under review):* School staff were asked to rate their level of agreement with 6 statements concerning their general satisfaction with their school (e.g., “I enjoy working at this school”, “this school does a good job of educating students”).

*Older adult characteristics*

Upon enrollment in BECS, participating older adults completed an in-person interview as well as a packet of self-administered questionnaires to assess cognition, physical health and mobility, social activity, and psychosocial well-being. In this analysis, we assessed the following demographic, health, and psychosocial measures collected at baseline (prior to entering schools) as potential moderators of the relationship between school climate and total number of weeks older adults participated in BECS:

*Income:* Participants were asked to indicate their total combined household income in the past 12 months. Responses were grouped into three categories: <$15,000; $15,000-$35,000; >$35,000.
Marital status: Participants were asked to identify their marital status as currently married, divorced, separated, widowed, or never married. From these responses, we created a dichotomous variable to indicate whether the participant was currently married or not.

Education: Participants were asked to identify their highest level of educational attainment as elementary school, high school or equivalent, college, or post graduate. From these responses, we created a dichotomous variable to indicate whether the participants’ educational attainment exceeded high school (1= more than high school; 0= high school or less).

Self-rated health: Older adults were asked: “Would you say your health is excellent, very good, good, fair, or poor?” This single question is commonly used in large-scale, longitudinal population based studies and has been shown to have acceptable validity among older adults (Mossey et al., 1982; Rhorer et al., 2009). For this analysis, responses were grouped into two categories: poor/fair and good/very good/excellent, as has been done previously (Manor, Mathew, & Power, 2000).

Health conditions: Older adults were asked whether they had a series of 24 common medical conditions among older adults (hypertension, heart disease, stroke, etc.). Responses to these questions were grouped into six types of chronic conditions (cardiovascular disease, cancer, diabetes, stroke, hypertension, and arthritis) and summed to create a variable for total number of major morbidities. For this analysis, responses were treated as continuous (0-6).

Perceptions of Usefulness to Community and Society: Older adults were asked to rate how often they felt useful to their communities and society on a 5-point Likert scale
(1=never, 2=rarely, 3=sometimes, 4=most of the time, 5=all of the time). This item was one of three items (perceptions of usefulness to community and society, perceptions of usefulness to family and friends, and overall contributions to the welfare and well-being of others) taken from previous investigations of older adults in the US and in Japan in which ratings on the measures predicted the risk of disability and mortality in later life (Gruenewald et al., 2007, 2009; Okamoto & Tanaka, 2004). Few participants in this analysis gave responses of “never” (2.4%) or “all of the time” (6.4%). Therefore, in this analysis, we grouped into 3 categories: “never/rarely”; “sometimes”; and “most of the time/all of the time”.

**Depressive symptomatology:** To assess depressive symptomatology, older adults completed the 15-item Geriatric Depression Scale (GDS-15) (Brink et al., 1982; Yesavage et al., 1983). The scale includes 15 “yes” or “no” questions addressing how the respondent has felt in the past week. The scale is scored by tallying the number of responses indicating a symptom of depression (“Yes”=1 for positively framed questions, “No”=1 for negatively framed questions). From these scores we created categories, based on previously established diagnostic cut-offs (None: 0-4; mild: 5-8; moderate: 9-11; severe: 12-15; Yesavage & Sheikh, 1986). The GDS-15 has been found to be a reliable and valid instrument for depression screening in older adults across a range of depressive symptom severity (Montorio & Izal, 1996; Yesavage et al., 1983).

**Other covariates:** Age, race, and gender were collected by self-report during the baseline assessment as part of the in-person interview.

**Analysis**

We first assessed volunteers’ baseline (prior to entering schools) characteristics
that were potential moderators of the relationship between school climate and dropout from BECS, including frequencies and percentages of these binary and ordinal variables. Next, we modeled time to dropout from BECS by fitting a series of Cox regression models with first week of volunteering as the time of entry and last week of volunteering as the event of interest. To evaluate older adult demographic and health characteristics and perceptions of usefulness to community and society as moderators, we created interaction terms between older adult characteristics and dimensions of school climate. We created interaction terms for each dimension of school climate (safety, resources, and overall satisfaction) with each potential moderator. Separate models were fit for each of the three dimensions of school climate and interaction terms were tested as predictors in the models one at a time, adjusting for cohort (i.e., date of entry into study) and other demographic, health, psychosocial covariates. When interaction terms suggested potential effect modification ($p<0.10$), we re-fit the Cox regression model, stratifying by the potential moderator. All statistical analyses were performed using Stata software, version 13 (StataCorp, College Station, TX).

Missing data for older adults in this study were scarce (income and major morbidities: 2.4% missing data at baseline; self-rated health: 3.4% missing at baseline). We assumed these covariates to be missing at random (MAR) and imputed values using imputation methods (Rubin, 1987). There were no other missing data for older adults’ health, demographic or psychosocial variables, or for school mean climate scores among the 25 schools participating in BECS.
4.3. Results

Table 1 displays descriptive statistics of demographic, health, and psychosocial characteristics of older adults that we assessed as potential moderators of the association between school climate and dropout from BECS. Volunteers were predominantly African American (91.3%) and female (86.9%). Approximately half of volunteers completed some education beyond high school (53.4%), and 28.5% were currently married. Median income was between $15,000 and $35,000, with 26.5% and 36.6% of participants reporting a household income <$15,000, and >$35,000, respectively. In total, 89.9% of participants reported their health as good, very good, or excellent. About one third of volunteers (33.9%) reported one or no medical morbidities. Most of the remaining volunteers (57.7%) reported 2-3 medical morbidities, with 25 volunteers (8.4%) reporting 4-5 conditions. Only 10.4% of volunteers reported “never” or “rarely” feeling useful to their communities and society. About half (46.0%) responded “sometimes” on this measure, and the remaining 43.6% reported feeling useful to their communities and society “most of the time” or “all of the time”. Depressive symptoms in this sample were low, with 96.3% of volunteers with no depression (four symptoms or less), and the remaining 3.7% reporting mild depression (5-8 symptoms) based on the 15-item Geriatric Depression Scale.

Based on the interaction terms used to model effect modification between older adult characteristics and dimensions of school climate, we found no evidence of effect modification by older adults’ health or demographic characteristics on the relationship between school climate and volunteer attrition (all $p>0.10$) (Table 2). We did find evidence of effect modification by volunteers’ perceptions of usefulness to their
communities and society with staff ratings of school safety \( (p=0.09) \) and overall satisfaction with their schools \( (p=0.03) \) (Table 2).

In our stratified analyses, our findings indicated that volunteers with perceptions that they are useful to their communities and society had lower odds of dropout when placed in schools with better staff perceptions of school safety (Table 3). Among volunteers who indicated that they feel useful to their communities and society “most of the time” or “all of the time”, a one unit increase in school safety rating among staff (i.e., a change in school-mean staff ratings from “agree” to “strongly agree” that their school is a safe place) was associated with a 68\% ((1-0.32) x 100) reduced risk of dropout \( (p<0.01) \) after adjusting for volunteers’ date of entry into the study, health, and demographic characteristics. Among volunteers who indicated “never” or “rarely” feeling useful to their communities and society, there was also a trend towards schools with better safety ratings being protective against dropout (hazard ratio (HR): 0.27, 95\% confidence interval (CI): 0.05, 1.48), but this result was not statistically significant \( (p=0.13) \). There was no evidence of an association between school safety and dropout among volunteers who indicated “sometimes” feeling useful to their communities and society \( (p=0.80) \).

Results from our stratified analyses also suggested that the relationship between staff ratings of overall satisfaction with schools and dropout of BECS volunteers is moderated by volunteers’ perceptions of usefulness to their communities and society. For older adults who reported “most of the time” or “all of the time” feeling useful on this measure, a one unit increase in staff ratings of overall satisfaction was associated with a 69\% reduced risk of dropout \( (p<0.01) \). A similar trend of higher overall satisfaction ratings protecting against volunteer dropout was observed for volunteers who
indicated feeling “never” or “rarely” useful to their communities and society (HR: 0.25, CI: 0.05, 1.57), but this result did not reach statistical significance ($p=0.15$). There was no evidence of an association between staff ratings of overall satisfaction and volunteer dropout among volunteers indicated that they “sometimes” feel useful to their communities and society ($p=0.57$).

4.4. Discussion

In this study, we evaluated older adults’ demographic and health characteristics, and perceptions of usefulness to community and society as moderators of the relationship between school climate and dropout from a school-based, time-intensive volunteer program. Overall, the results of this study suggest that older adults’ perceptions of usefulness to their communities and society, but not health or demographic characteristics, act as moderators of the school climate-volunteer dropout relationship. Specifically, better school climate ratings of safety and overall satisfaction were protective against volunteer dropout among older adults who reported feeling useful to their communities and society “most of the time” or “all of the time”.

Previous studies have identified recruitment and sustained participation of older adults in volunteer positions as an important goal (Martinez et al., 2006; Li, Chen, & Chen, 2013; Butrica et al., 2009; Morrow-Howell, 2010), and researchers have recognized the importance of matching volunteer opportunities and recruitment messages to the characteristics and motivations of volunteers (Morrow-Howell et al., 2003; Clary et al., 1998). Prior studies have also supported the importance of organizational qualities (effective management, accessibility, dissemination of information, appreciation, etc.) in
recruitment and sustained participation of volunteers (Morrow-Howell, 2010; Hong et al., 2009). Our study builds on this work by examining interactions between individuals and organizations as they relate to length of volunteer participation. Understanding how older adult characteristics interact with school climate to promote or impede adherence to volunteer roles is important to understanding how individuals can best be matched with volunteer environments in which they are most likely to sustain their commitment.

This study had several limitations that should be considered when interpreting our results. First, this was a relatively homogeneous sample in terms of race, gender, and psychosocial wellbeing. Our sample contained only 31 (10.4%) participants who reported “never” or “rarely” feeling useful to their communities and society. Although we observed a trend toward better school climate protecting against dropout in this subsample of volunteers, having so few participants in this sub-sample may have limited our power to detect a significant effect. Further, our sample of mostly African American women with no depression limited our ability to test for moderation by gender, race, and depressive symptoms. Future studies should seek to replicate our findings among older adults with a greater range of demographic, health, and psychosocial characteristics, possibly in one or more of the other 18 cities across the US in which the Experience Corps Program is active (Experience Corps, 2014). Studying more vulnerable populations could have important public health implications, especially if findings suggest that placing higher risk individuals in organizations with better climates leads to more sustained participation. Additionally, this study relied on school-level climate measures rated by staff in Experience Corps schools rather than ratings by individual volunteers. Although having a measure of climate from the perspective of an informant who is
unbiased with respect to the outcome being assessed may provide a more objective measure (Hong & Morrow-Howell, 2013), future studies may wish to incorporate measures of climate from the perspective of the volunteer, in addition to ratings from a neutral, third party, in order to study individual-level interactions between perceptions of climate and personal characteristics as they relate to volunteer participation patterns.

Finally, although efforts were made to prevent selection bias by randomly assigning older adults to volunteer or control status, 54 participants assigned to the volunteering condition dropped out of the study after randomization, but before school placement. It is possible that this pre-intervention attrition was non-differential with respect to the moderators. In fact, a post-hoc analysis suggested that older adults who were randomized to volunteer but dropped out without participating as a volunteer had lower self-rated health and lower income compared to the older adults who complied with their volunteer assignment. Nevertheless, this study benefits from being the first to assess individual characteristics as moderators of the association between the climate of volunteer organizations and duration of volunteer participation, and to do so in a relatively large sample of older adults with precise measures of volunteer participation.
4.5. References


Musick, M.A. & Wilson, J. (2003). Volunteering and depression: The role of psychological and social resources in different age groups. Social Science and Medicine, 56, 259-269. doi:10.1016/S0277-9536(02)00025-4


Table 1. Older adult demographic, psychosocial and health characteristics assessed as potential moderators of the relationship between school climate and volunteer retention

<table>
<thead>
<tr>
<th></th>
<th>N (% ) or Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic</strong></td>
<td></td>
</tr>
<tr>
<td>Education (&gt; high school)</td>
<td>160 (53.4)</td>
</tr>
<tr>
<td>Married</td>
<td>85 (28.5)</td>
</tr>
<tr>
<td>Income</td>
<td></td>
</tr>
<tr>
<td>&lt;$15,000</td>
<td>79 (26.5)</td>
</tr>
<tr>
<td>$15,000 - $35,000</td>
<td>110 (36.9)</td>
</tr>
<tr>
<td>&gt;$35,000</td>
<td>109 (36.6)</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
</tr>
<tr>
<td>Total # Major Morbidities (0-6)</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>26 (8.7)</td>
</tr>
<tr>
<td>1</td>
<td>75 (25.2)</td>
</tr>
<tr>
<td>2</td>
<td>103 (34.6)</td>
</tr>
<tr>
<td>3</td>
<td>69 (23.1)</td>
</tr>
<tr>
<td>4</td>
<td>24 (8.1)</td>
</tr>
<tr>
<td>5</td>
<td>1 (0.3)</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td><strong>Self-rated Health</strong></td>
<td></td>
</tr>
<tr>
<td>Poor/fair</td>
<td>30 (10.4)</td>
</tr>
<tr>
<td>Good/very good/excellent</td>
<td>268 (89.6)</td>
</tr>
<tr>
<td><strong>Psychosocial</strong></td>
<td></td>
</tr>
<tr>
<td>Perceptions of usefulness to community and society</td>
<td></td>
</tr>
<tr>
<td>Never/rarely</td>
<td>31 (10.4)</td>
</tr>
<tr>
<td>Sometimes</td>
<td>137 (46.0)</td>
</tr>
<tr>
<td>Most of the time/always</td>
<td>130 (43.6)</td>
</tr>
<tr>
<td><strong>Geriatric Depression Scale- 15 item</strong></td>
<td></td>
</tr>
<tr>
<td>None (0-4)</td>
<td>287 (96.3)</td>
</tr>
<tr>
<td>Mild (5-8)</td>
<td>11 (3.7)</td>
</tr>
<tr>
<td>Moderate (9-11) and severe (12-15)</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 2. Hazard ratios for interactions between older adults’ health and demographic characteristics, and perceptions of usefulness to their communities and society as predictor of BECS volunteer retention

<table>
<thead>
<tr>
<th>Dimension of school climate Interaction (climate x volunteer characteristic)</th>
<th>Hazard ratio</th>
<th>[95% CI]</th>
<th>Hazard ratio</th>
<th>[95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Safety</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>safety x income</td>
<td>1.39</td>
<td>[0.82, 2.35]</td>
<td>1.37</td>
<td>[0.81, 2.33]</td>
</tr>
<tr>
<td>safety x marital status</td>
<td>1.33</td>
<td>[0.57, 3.09]</td>
<td>1.40</td>
<td>[0.59, 3.35]</td>
</tr>
<tr>
<td>safety x education</td>
<td>0.61</td>
<td>[0.28, 1.32]</td>
<td>0.69</td>
<td>[0.31, 1.53]</td>
</tr>
<tr>
<td>safety x self-rated health</td>
<td>0.70</td>
<td>[0.21, 2.27]</td>
<td>0.58</td>
<td>[0.17, 1.94]</td>
</tr>
<tr>
<td>safety x number of major morbidities</td>
<td>1.08</td>
<td>[0.74, 1.57]</td>
<td>1.08</td>
<td>[0.74, 1.57]</td>
</tr>
<tr>
<td>safety x perceptions of usefulness to community and society</td>
<td>0.53</td>
<td>[0.28, 1.03]</td>
<td>0.56</td>
<td>[0.29, 1.08]</td>
</tr>
<tr>
<td><strong>School Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>resources x income</td>
<td>1.25</td>
<td>[0.71, 1.27]</td>
<td>1.19</td>
<td>[0.68, 2.07]</td>
</tr>
<tr>
<td>resources x marital status</td>
<td>1.10</td>
<td>[0.39, 3.08]</td>
<td>1.11</td>
<td>[0.40, 3.10]</td>
</tr>
<tr>
<td>resources x education</td>
<td>0.95</td>
<td>[0.37, 2.43]</td>
<td>1.04</td>
<td>[0.40, 2.66]</td>
</tr>
<tr>
<td>resources x self-rated health</td>
<td>0.54</td>
<td>[0.14, 2.00]</td>
<td>0.50</td>
<td>[0.13, 1.90]</td>
</tr>
<tr>
<td>resources x number of major morbidities</td>
<td>1.13</td>
<td>[0.77, 1.65]</td>
<td>1.18</td>
<td>[0.80, 1.73]</td>
</tr>
<tr>
<td>resources x perceptions of usefulness to community and society</td>
<td>0.60</td>
<td>[0.30, 1.23]</td>
<td>0.66</td>
<td>[0.32, 1.35]</td>
</tr>
<tr>
<td><strong>Overall Satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>satisfaction x income</td>
<td>1.41</td>
<td>[0.80, 2.48]</td>
<td>1.44</td>
<td>[0.82, 2.53]</td>
</tr>
<tr>
<td>satisfaction x marital status</td>
<td>0.29</td>
<td>[0.02, 5.35]</td>
<td>1.46</td>
<td>[0.61, 3.55]</td>
</tr>
<tr>
<td>satisfaction x education</td>
<td>0.58</td>
<td>[0.24, 1.40]</td>
<td>0.70</td>
<td>[0.29, 1.67]</td>
</tr>
<tr>
<td>satisfaction x self-rated health</td>
<td>0.58</td>
<td>[0.18, 1.84]</td>
<td>0.54</td>
<td>[0.16, 1.80]</td>
</tr>
<tr>
<td>satisfaction x number of major morbidities</td>
<td>1.16</td>
<td>[0.75, 1.79]</td>
<td>1.21</td>
<td>[0.79, 1.84]</td>
</tr>
<tr>
<td>satisfaction x perceptions of usefulness to community and society</td>
<td>0.44</td>
<td>[0.22, 0.89]</td>
<td>0.46</td>
<td>[0.22, 0.93]</td>
</tr>
</tbody>
</table>

1- $h(t) = h_0(t)\exp(\beta_1[\text{school climate}] + \beta_2[\text{volunteer characteristic}] + \beta_3[\text{climate x volunteer characteristic}] + \beta_4[\text{cohort}])$

2- Model 1 + age, marital status, education, income, self-rated health, major morbidities, perceptions of usefulness

3- $p<0.10$
Table 3. Hazard ratios for staff-rated school safety and overall satisfaction as predictors of volunteer retention stratified by volunteers’ perceptions of usefulness to their communities and society

<table>
<thead>
<tr>
<th>Safety</th>
<th>Unadjusted model¹</th>
<th>Adjusted model²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard ratio</td>
<td>[95% CI]</td>
</tr>
<tr>
<td>None</td>
<td>0.55</td>
<td>[0.13, 2.34]</td>
</tr>
<tr>
<td>Sometimes</td>
<td>1.04</td>
<td>[0.63, 1.73]</td>
</tr>
<tr>
<td>Most of the time/all of the time</td>
<td>0.36⁴</td>
<td>[0.19, 0.67]</td>
</tr>
<tr>
<td>Overall satisfaction³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0.72</td>
<td>[0.19, 2.73]</td>
</tr>
<tr>
<td>Sometimes</td>
<td>1.26</td>
<td>[0.71, 2.22]</td>
</tr>
<tr>
<td>Most of the time/all of the time</td>
<td>0.34⁴</td>
<td>[0.16, 0.72]</td>
</tr>
</tbody>
</table>

1- \( h(t) = h_0(t)e^{\beta_1[\text{school climate}] + \beta_4[\text{cohort}]} \)
2- Model 1 + age, marital status, education, income, self-rated health, major morbidities
3- \( p \)-values for interaction terms >0.10 (Table 2)
4- \( p<0.01 \)
Chapter 5. Discussion

This final chapter presents overviews of all three studies and highlights key findings from each study. The limitations and strengths of this dissertation are presented, and the public health significance of key findings is highlighted. Finally, future directions for research are recommended.

5.1. Study Overview and Key Findings

5.1.1. Student, teacher, and parent perceptions of school climate

Chapter 2 presented a study designed to better understand how students, staff, and parents differ in their perceptions of four dimensions of school climate. This was the first study to compare school climate from the perspectives of three different informant groups and to do so longitudinally, with annual observations over a five-year period. As expected, we found that students, staff, and parents differ in their perceptions of school climate. Further, the magnitude and direction of observed differences depended on the dimension of school climate being rated. Students tended to give the worst ratings of school safety, parents tended to give the worst ratings of parental involvement and communication, and teachers gave the lowest ratings of their school learning environments compared to other informants. Our results emphasize the importance of taking into account the type of informant when evaluating school climate.

5.1.2. School Climate, Attendance, and Retention of Older Adults

The study in Chapter 3 evaluated school climate as a predictor of weekly attendance (hours/week) and retention (total weeks volunteered) of older adults participating in the intervention arm of a time-intensive, school-based randomized-
controlled trial of volunteerism in late-life. We assessed eight dimensions of school climate rated by school staff and students in grades 3-5 as predictors of older adult attendance and retention. Staff ratings of school climate were associated with retention but not attendance of volunteers. Volunteers in schools with better staff ratings of school safety were more likely to continue volunteering than older adults in schools with worse safety ratings. Similar trends were observed for school resources, and overall satisfaction. Our findings did not suggest any associations between student ratings of school climate and volunteer attendance or retention. Our results suggest that targeting organizations with positive staff-rated climates could have important implications for sustaining participation of older adult volunteers.

5.1.3. Demographic, health, and psychosocial moderators of the association between school climate and retention of older adults in school-based volunteer roles

The study in Chapter 4 evaluated characteristics of older adults as potential moderators of the association between school climate and retention of older adults in school-based volunteer roles. Specifically, we evaluated older adult demographic and health characteristics demonstrated to influence volunteer participation in previous studies, as well as psychosocial characteristics that have not been previously studied, as potential moderators. This study used the same sample of older adult volunteers as the study described in Chapter 3 and evaluated effect modification with the three dimensions of school climate (school safety, resources, and overall satisfaction) shown to have a main effect on volunteer retention in Chapter 3. Overall, results suggest that perceptions of usefulness to their communities and society, but not health or demographic
characteristics of older adults may moderate the association between school climate and volunteer retention in time-intensive school-based volunteer roles.

5.2. Limitations

One of the main limitations of this study was the lack of individual- and classroom-level identifiers to match ratings of school climate to classrooms and individuals over the five-year study period. In Chapter 2, we were unable to match ratings of parents with ratings of their children, and ratings of teachers to the students and parents of students in their classrooms. Further, we were not able to link ratings from individual students, staff, and parents from one school year to the next. Instead, we relied on school mean climate data across years for our analyses. Previous studies have found that much of the variation in ratings of school climate is at the individual and classroom levels (Koth et al., 2008). Ability to control for individual- and classroom-level correlations in our data would have allowed us to obtain more precise estimates of school climate in the analyses presented in Chapter 2. In Chapters 3 and 4, lack of classroom-level data prevented us from filtering out climate ratings from students and staff who were not exposed to the Experience Corps intervention. It is possible that climate was experienced differently in classrooms with Experience Corps volunteers, and that including non-Experience Corps classrooms may have attenuated the impact of school climate on volunteer outcomes.

An additional limitation to our findings concerns the potential lack of generalizability of our findings. In Chapter 2, findings regarding differences in perceptions of school climate between informants may be limited to large, urban, predominantly low-income, minority school districts such as the one evaluated in this
study. In Chapters 3 and 4, we assessed volunteer attendance and retention of older adults in school-based volunteer roles in a predominantly female and African American volunteer sample. Therefore, our findings may not extend to other non-school-based volunteer programs or to volunteers with different socio-demographic characteristics.

Finally, selection bias is a potential issue in all three studies in this dissertation. In Chapter 2 we used data from all students in grades 3-5, staff, and parents who completed the Baltimore City Public School System Climate Survey. Although the survey was intended to be administered to all members of these three informant groups, not all informants completed the survey. Further, without personal identifiers to link survey responders (and non-responders) with individual characteristics (i.e., age, gender, test scores) we were not able to determine whether responders differed from non-responders on characteristics that may relate to perceptions of school climate. In Chapters 3 and 4, the sample of 298 older adults was a subsample of the 352 older adults who were initially randomized to the volunteer intervention within BECS. A post-hoc analysis revealed that dropout after randomization was indeed differential, with older adults of lower income and lower self-reported health being more likely to drop out after randomization but prior to volunteering in schools. Therefore, the results from our studies may only generalize to older adults with higher income and better self-rated health prior to volunteering.

5.3. Strengths

A major strength of this dissertation was the availability of data on multiple dimensions of school climate from the perspective of three different informant groups. Studies of school climate often are based on ratings from a single type of informant (e.g.,
students or staff; Anderson, 1982; Zullig et al., 2010). Further, in previous studies of volunteer participation, organizational climate has been rated exclusively by volunteers, which the authors identify as a potential source of measurement bias (Hong et al., 2009). Our studies, however, included measurements from multiple informants (Chapter 2: students, school staff, and parents; Chapter 3: students and school staff), whose opinions about school climate are unrelated to the personal experience of individual volunteers, and therefore may be more objective as they relate to volunteer attendance and retention. Additionally, this dissertation benefitted from a longitudinal study design for both the study of perceptions of school climate by multiple informants in Chapter 2 and the studies of older adult volunteers in Chapters 3 and 4. Most of the existing literature on patterns of volunteer behavior in older adults is cross sectional, limiting the ability to establish temporal relationships between characteristics of volunteers and organizations and participation patterns of volunteers. In Chapters 3 and 4, we were able to establish temporal relationships between older adults’ characteristics prior to volunteering, exposure to school climate, and attendance and retention in volunteer roles.

In addition to the prospective design of our studies, Another strength was the precise measurements of total number of hours and total weeks older adults volunteered. Most studies of volunteer dosage among older adults come from large observational studies and rely on self-report, asking participants to recall the total number of hours they volunteered in the past year in a categorical response format (Van Willigen, 2000; Musick & Wilson, 2003; Butrica, Johnson, & Zedlewski, 2009). Studies of volunteer dosage based on this type of data can be problematic for two reasons. First, it is prone to recall bias, as older adults are being asked to retrospectively report on a range of
activities that constitute volunteering and then to estimate the number of hours they dedicated to these activities over the previous twelve months. Second, volunteering is a dynamic process (Morrow-Howell, 2010). People transition into and out of roles over time, making retrospective collection of volunteering data more difficult (Musick & Wilson, 2000). From data based on recall and collected categorically in ranges of hours, we do not know if volunteers contributed their indicated hours in a continuous fashion, or in one or several larger, interspersed doses over the recall period. Our study avoided this potential for recall bias and enhanced precision on volunteer dose measurements by collecting weekly attendance data on older adults, allowing us to match older adults with specific dates and number of hours volunteered at their assigned schools. Prospective collection of weekly volunteer hours and total weeks of participation also allowed us to assess variation in volunteer behavior both within and between individuals, over time.

Finally, this study benefitted from the randomized-controlled trial design of the Baltimore City Experience Corps Study. Outcomes from large observational studies tend to treat all volunteer activity as a uniform measurement due to the limited scope of data collected on specific volunteer activities. However, it is well known that the term “volunteering” encompasses a diverse range of activities that can be prolonged or limited to a single episode, skilled or unskilled, religious or secular, etc. (Hank & Erlinghagen, 2009). Considering the diversity of volunteer activities that older adults engage in, this can be problematic. Our study benefitted from a uniform volunteer experience across the entire study. Older adult participants in our study were participants in the intervention arm of the larger BECS and therefore all received the same training and similar school-based exposure (Fried et al, 2013).
5.4. Public Health Significance

As we undergo a demographic shift towards a larger population of older adults (United Nations, 2005), volunteerism is one potential mechanism through which we may be able to capitalize on the generative motives of older adults to simultaneously address societal needs and physical and mental health needs of an aging population (Fried, et al., 2004; Morrow-Howell, Hinterlong, Rozario & Tang, 2003). In order for this mutual benefit to occur, a sustained commitment by volunteers is necessary. Therefore, understanding how the climate of organizations relates to volunteer participation and how individual characteristics interact with organizational climate to promote or impede volunteer participation has important public health implications.

The public health significance of this dissertation can be best understood through Sherraden and colleagues’ (2001) conceptual framework for institutional capacity. Previously, Sherraden and colleagues (2001) defined institutional capacity as the ability of social institutions to provide meaningful roles for older adults (Sherraden, Morrow-Howell, Hinterlong, & Rozario, 2001). Subsequently, this group of researchers identified six dimensions of institutional capacity with which to assess the potential for programs and organizations to provide a beneficial environment for older adult volunteers: 1) role flexibility; 2) role recognition; 3) cash incentives; 4) skill development; 5) accommodation; and 6) integration (Hong, Morrow-Howell, Tang, & Hinterlong, 2009). Within this framework, individual-level characteristics of older adults and organization-level characteristics of volunteer programs are responsible for volunteer outcomes, but from a policy perspective, institutional capacity may be a more practical target for improvement compared to individual characteristics of potential volunteers (Hong &
Morrow-Howell, 2013). Importantly, in addition to empirically testing and concluding that their six dimensions of institutional capacity are essential components of perceived benefit and continuation of volunteer roles among older adults, Hong and Morrow-Howell recommend continued development of the concept including assessment of organizational climate (Hong & Morrow-Howell, 2013; Glisson, 2000).

Our results extend the concept of institutional capacity to include organizational climate (in our case, school climate) as a target area for maximizing volunteer outcomes. Our results suggest that perceived safety of volunteer organizations is an important component of volunteer retention. Older adults in our school-based study volunteered for more consecutive weeks when placed in schools that staff members perceived as being safer. Our results also indicate that school resources and overall satisfaction should be evaluated further as potential components of institutional capacity in the context of school-based volunteer roles for older adults.

5.5. Future Directions for Research

There are several directions that future research should take to build upon the findings within this dissertation. First, studies should expand to non-school-based programs. School programs primarily attract women and those with more education. In order to understand how organizational climate affects patterns of volunteer behavior and whether individual characteristics moderate this relationship in other populations, more studies are needed with diverse samples of older adults and organizations with volunteer opportunities (e.g., charity organizations, community centers, religious organizations). Additionally, if volunteerism among older adults is intended to provide health and psychosocial benefits to older adults, future studies should target high-risk individuals
and direct them to programs with strong institutional capacity and positive organizational climate.

As we concluded in Chapter 2, perceptions of climate can differ substantially between different types of informants rating the same organization. Our findings suggest that it is important to measure climate from different perspectives and to take into account the perspective of the informant when interpreting the outcomes of school-based programs or making policy decisions in this domain. Further, ratings by one type of informant may be more or less valid than others depending on the outcome being assessed. Future studies of organizational climate and volunteer behavior of older adults should account for the perspective of older adults when measuring climate.

Although several studies have collected institutional capacity ratings from the perspective of volunteers and noted this as a limitation, we believe that this additional information could have utility in understanding how individual perceptions potentially differ from institutional (e.g., staff) perspectives and whether one or the other is more useful in predicting volunteer behavior. Finally, future studies of individual and organizational characteristics of older adults in volunteer roles should include both measures of climate and Hong and Morrow-Howells’ original measures of institutional capacity.
5.5. References


Curriculum Vitae

Christine M. Ramsey
christine.ramsey@gmail.com

Education

Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
Department of Mental Health, PhD candidate
Advisor: Adam P. Spira, PhD
August 2009- May 2014

Johns Hopkins University, Baltimore, MD
Institute of Education Sciences Pre-doctoral Fellow
R305B080020 (PI: Karl Alexander, PhD)
August 2009- May 2014

Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
Certificate in Gerontology (to be awarded with PhD)

Drexel University, Philadelphia, PA
74 course credits in Chemical Engineering
June 2004- March 2006

Syracuse University, Syracuse, NY
Bachelor of Science in Psychology, cum laude
August 2001- May 2004

Professional Experience

Jul 2006-Dec 2011 Research Assistant
PI: Hochang Benjamin Lee, MD
Department of Geriatrics and Neuropsychiatry
Johns Hopkins School of Medicine
Role: Participant recruitment, cognitive assessment, database management,
data analysis and manuscript preparation in studies of:
  - Cognitive sequelae of early and mid-life depression in older adults
  - Depression and cognitive function after coronary artery bypass
    surgery in middle aged and older adults
  - Cognitive function, symptomatology, attitudes and beliefs towards
    Restless Legs Syndrome (RLS) among middle aged and older adults
    with treated, untreated, and no RLS
  - Post-operative delirium in older adults following hip-fracture

Jan 2012- present Graduate Student Researcher
PI: George Rebok, PhD; Thesis Advisor: Adam P. Spira, PhD
Johns Hopkins Center on Aging and Health
Role: Contribute to projects and manuscripts for the following studies:

- Experience Corps Trial: Improving Health of Older Populations through Generativity
- Intergenerational Benefits of Experience Corps: Impact on Children and Schools

Sept-Aug 2011-12  Graduate Student Researcher  
PI: Deborah Carran, PhD  
School of Education  
Johns Hopkins University  
Role: Data analysis and manuscript preparation for a study of post-secondary education outcomes for students with severe emotional/behavioral disabilities enrolled in nonpublic special education facilities in Maryland and New Jersey

Sept-Aug 2010-11  Graduate Student Researcher  
PI: Nicholas Ialongo, PhD  
Department of Mental Health  
Johns Hopkins Bloomberg School of Public Health  
Role: Assisted with administration of school-based preventive interventions at the Center for Prevention and Early Intervention in Baltimore, MD

Jan-May 2004  Undergraduate Student Researcher  
PI: Peter Vanable, PhD  
Department of Psychology  
Syracuse University  
Role: Assisted with survey design, administration, poster preparation, and presentation for a study of sexual risk-taking in college students

Aug-May 2003-04  Undergraduate Student Researcher  
PI: Thomas Tomcho, PhD  
Department of Psychology  
Syracuse University  
Role: Assisted with content analysis of scenario-based psychological research published in peer-review journals

**Professional Societies and Activities**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>May 2013-present</td>
<td>The Gerontological Society of America, student member</td>
</tr>
<tr>
<td>Sept-May 2011-present</td>
<td>Johns Hopkins Department of Mental Health and Aging Works in Progress</td>
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<tr>
<td>Sept-May 2009-13</td>
<td>Johns Hopkins Department of Mental Health noon seminar</td>
</tr>
<tr>
<td>Sept-May 2006-12</td>
<td>Johns Hopkins Department of Behavioral Sciences Grand Rounds</td>
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<tr>
<td>Sept-May 2006-11</td>
<td>Johns Hopkins Department of Behavioral Sciences Psychiatry Research Conference</td>
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Honors and Awards

May 2014 Morton Kramer Award
Description: Awarded annually by the Johns Hopkins Department of Mental Health to a doctoral student who demonstrated excellence in the application of biostatistical and epidemiologic methods to the solution of problems in research dedicated to advancing our knowledge of the epidemiology of mental disorders.

Apr 2004 Runner-up Syracuse University undergraduate poster conference
"Alcohol Use and Sexual Risk Taking in College Students"

Apr 2004 Runner-up Syracuse University undergraduate poster conference
“Did You Understand the Question: An analysis of question framing and response”

2001-04 National Dean's List
2001-04 Syracuse University Athletic Director’s Honor Roll
2002-03 Soliday Award for maintaining highest GPA of sophomore track athletes
2003-04 Soliday Award for maintaining highest GPA of senior track athletes

Publications

Peer-reviewed journal articles:


Manuscripts under review:


Manuscripts in preparation:


Presentations at Scientific Meetings

May 2012 American Geriatrics Society annual meeting

Apr 2012 Johns Hopkins 5th Annual Research on Aging Showcase

June 2009 Associated Professional Sleep Societies annual meeting
Comparison of symptomatology and attitudes and beliefs toward RLS treatment among Caucasians and African-Americans with untreated RLS in the community. Ramsey CM, Hening W, Spira AP, Allen R, Lee H.

June 2009 Associated Professional Sleep Societies annual meeting
Validity of even-item RLS Diagnostic Questionnaire (RiBECA-7Q) in the Restless Legs Syndrome in the Baltimore Epidemiologic Catchment Area (RiBECA) study. Lee HB, Hening W, Ramsey CM, Allen R.

Mar 2008 American Psychopathological Association annual meeting
Longitudinal association between cluster B personality disorders and cognitive decline among community residents. Lee HB, Bienvenu J, Ramsey CM, Nestadt G, Samuels J and Eaton WW.

Mar 2008 American Association for Geriatric Psychiatry annual meeting
Junior Investigators poster session
History of manic spectrum episodes and risk of cognitive decline among community residents: Findings from the Baltimore ECA follow-up study. Ramsey CM, Leoutsakos J, Cho SJ, Munro C, Lee HB.

Sept 2007 World Association of Sleep Medicine annual meeting
Personality traits and Restless Legs Syndrome in an adult community sample: Findings from RLS in Baltimore ECA (RiBECA) study. Lee HB, Kalaydjian A, Hening W, Ramsey CM, Eaton WW, Bienvenu J.

Nov 2007 Association of Psychosomatic Medicine annual meeting
Junior Investigators poster session

Mar 2007 American Association for Geriatric Psychiatry annual meeting
Race and cognitive decline among elderly residents with mild cognitive impairment: Findings from the Memory and Medical Care Study. Lee HB, Kalaydjian AE, Black BS, Shore AD, Ramsey CM, Kasper JA, Rabins PV.

Contributed Oral Presentations
April 2014 American Educational Research Association
Collaborative Post-school Outcome Study for Maryland and New Jersey: Tracking outcomes for students with severe emotional/behavioral disabilities enrolled in nonpublic special education facilities. Career Development and Transition for Exceptional Individuals. Carran D, Ramsey CM, Kellner M, Murray S.

Nov 2013 Gerontological Society of America annual meeting

Teaching Experience

Sept- Oct 2011-13 Teaching Assistant
Statistics for Psychosocial Research: Measurement
Department of Mental Health
Johns Hopkins Bloomberg School of Public Health
Instructors: Jeannie-Marie Leoutsakos, PhD and Qian-Li Xue, PhD
Led biweekly “Live Talk” discussions for online section, held weekly office hours, graded problem sets
Oct- Dec 2012-13  Teaching Assistant
Statistics for Psychosocial Research: *Structural Equations*
Department of Biostatistics
Johns Hopkins Bloomberg School of Public Health
Instructors: Jeannie-Marie Leoutsakos, PhD and Qian-Li Xue, PhD
Supervised weekly computing labs, held weekly office hours, graded problem sets

Jan- Mar 2012  Teaching Assistant
Introduction to Behavioral and Psychiatric Genetics
Department of Mental Health
Johns Hopkins Bloomberg School of Public Health
Instructor: Peter Zandi, PhD
Gave lecture on “Defining the Phenotype” and assisted with administrative duties

**Invited Lectures**

Johns Hopkins Bloomberg School of Public Health
Department of Mental Health
Introduction to Behavioral and Psychiatric Genetics
Guest lecture: *Defining the Phenotype*. February 1, 2012

Johns Hopkins School of Medicine
Cardiovascular Disease Working Group meeting
*Lifetime history of manic spectrum episodes and risk of incident cardiovascular disease: Findings from the Baltimore Epidemiologic Catchment Area follow-up study*. November 11, 2009