

Nepali Bhutanese Refugees Reap Support Through Community Gardening

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Effectively addressing psychological needs of refugees is a challenge for service providers operating within an expensive health care system based on Western constructs of mental health. In response to this challenge, refugee resettlement agencies throughout the United States use community gardens to promote psychological healing, self-sufficiency, community engagement, and a return of human dignity. Although the success of these programs has been reported in the popular press, they have not been studied systematically. The present exploratory mixed methods study drew upon quantitative and qualitative data to explore perspectives on participating in a community garden among Nepali Bhutanese refugees ($N = 50$; 62% female). Participants self-selected to engage in gardening prior to research ($n = 22$), or were part of the nongardening comparison group ($n = 28$). Results revealed no significant group differences in regard to symptoms of depression, anxiety, somatic complaints, or adjustment to life in the United States. Quantitative results indicated that community gardening was significantly positively associated with social support, a key contributor to optimal functioning within communal cultures. Qualitative data provided additional context within which to understand these results, and further supported the role of social support in community gardening. Implications for clinical research, advocacy, and community care are discussed and suggestions for further research are provided.

Keywords: refugee, trauma, gardening, acculturation, social support

In 1990, tens of thousands of Bhutanese residents of Nepali heritage were forced to leave the country of Bhutan, in a political effort to homogenize the country's culture (Schäppi, 2005). Prior to the order for these families to leave the country, many lost their jobs, homes, and were detained or tortured with accusations of political conspiracy. The United Nations High Commission for Refugees (UNHCR) estimates 108,000 fled Bhutan for neighboring countries, and those individuals are now con-

sidered refugees and stateless persons by the international community (UNHCR, 2001, 2006, 2010). For 16 years, refugees from Bhutan resided in seven (now consolidated to two) UNHCR-established camps throughout eastern Nepal (Cultural Orientation Resource Center [CORC], 2007; UNHCR, 2006). Because the Bhutanese government has been unwilling to repatriate Nepali-descent families, and these families were unable to attain citizenship in Nepal or India, tertiary countries such as the United States began opening channels of refuge and integration in 2006 (CORC, 2007; Gazmere and Bishow, 2000; UNHCR, 2010; Center for Disease Control and Prevention [CDC], 2013). Beginning in 2006, the United States led seven other countries in beginning to open legal immigration pathways to resettlement for Nepali Bhutanese refugees (CORC, 2007).

Since 2008, almost 85,000 Nepali Bhutanese refugees have been resettled in the United States (Refugee Processing Center, 2015). Nepali Bhutanese culture, typically communal in na-

This article was published Online First August 8, 2016.
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Funding support for this study was provided via a small grant (GA9538) to the second author from the University of North Texas.

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ture, is heavily based on Hinduism (CORC, 2007; International Organization of Migration [IOM], 2008) and strongly emphasizes the present moment and family functionality over individual experience (American Psychological Association [APA], 2010; Dutton, 2011; Pumariega, Rothe, & Pumariega, 2005). Many refugees struggle to adapt to new lifestyles (Porter & Haslam, 2005), economy (Carswell, Blackburn, & Barker, 2011), language (Pumariega et al., 2005), and social structures (APA, 2010). Some efforts to address these needs have been made by the U.S. Office of Refugee Resettlement (ORR) and the voluntary agencies (VOLAGs), which facilitate the process of family or individual resettlement. Unfortunately, mental health providers, typically operating from Western approaches, have found it difficult to address the needs of this population (APA, 2010).

Mental Health Needs of Nepali Bhutanese Refugees

Nepali conceptualizations of psychological distress are intertwined with religious and spiritual values (Benson, Sun, Hodge, & Androff, 2012), a communal perspective (Kohrt & Hruschka, 2010), and localized traditional beliefs (Kohrt & Hruschka, 2010). As a result, Nepali Bhutanese (hereafter referred to as Bhutanese for brevity, based on participant self-reference) refugee families in the United States typically prefer to address mental health needs at the family or community level before seeking professional Western interventions, as noted by reviews of the risk factors and mental health needs of Bhutanese refugees (Chase, 2012; Pumariega et al., 2005). Nevertheless, these refugees are roughly 10 times more likely to experience posttraumatic stress disorder (PTSD) than age-matched citizens of host countries (Fazel, Wheeler, & Danesh, 2005). Elevated risk of somatoform pain disorders, anxiety, and other mental health problems have also been reported in the literature (Mills, Singh, Roach, & Chong, 2008; Van Ommeren et al., 2001), and the CDC (2012) has documented a high number of Bhutanese refugee suicides. Older adults are particularly susceptible to anxiety and depression from isolation, as they often struggle the most within families to adapt to a new language and

environment (APA, 2010; Pumariega et al., 2005).

Among the challenges in providing mental health services to refugee groups in the United States are initial identification of needs, access to affordable treatment and resources, bridging linguistic barriers, navigating differing views of mental health and mental illness, stigma, and lack of trust (APA, 2010; Chase, 2012; Eth, 1992; Oliver, 2015; Shannon, Wieling, Simmelink-McCleary, & Becher, 2015; Williams & Thompson, 2011). Furthermore, many mental health care professionals struggle with inclusion of religious and spiritual values in treatment and the family-centered Bhutanese perspectives, which dictate family involvement in most aspects of treatment. The Hindu understanding of health as an interaction of mind, body, and spirit, with emphasis on externalized symptoms can also present a unique challenge in typical psychotherapy settings (Hodge, 2004).

The benefits of communal living and group activities are inherent in Bhutanese village structures, refugee camps, and Hindu philosophies (Chase, 2012; Dutton, 2011). Norris and Alegria (2005) recommended collaborating with community stakeholders to develop innovative and empowering programming based on community needs and strengths. Similarly, Reiffers et al. (2013) recommended strengthening services for refugee communities and enhancing cooperation with local and international services. As well, community engagement efforts have been strongly encouraged in multiple reports on mental health best practices with refugees (APA, 2010; Chase, 2012; Kohrt & Hruschka, 2010; Wessells, 2009; Williams & Thompson, 2011), and psychologists have found emphasis on strengths and resiliency may be more effective in treating the needs of these populations (Papadopoulos, 2007). In fact, community interventions have been found to decrease psychological distress in Bhutanese refugees better than standard case management services (Mitschke, Aguirre, & Sharma, 2013). Specifically, Mitschke et al. (2013) found Bhutanese refugee women who were engaged in financial literacy and knitting groups showed decreased symptoms of PTSD, anxiety, depression, and somatization. Participants not in these groups actually showed increased symptoms at a six month follow-up, despite receiving the

standard case management services at a local refugee resettlement agency.

Community Gardening: A Novel Intervention

One such community intervention that is gaining popularity in various contexts is community gardening. Typically found in urban settings, community gardens generally consist of multiple plots of earth cultivated by different families or individuals, as well as communal plots for shared, high-yield crops (Okvat & Zautra, 2011). In nonrefugee populations, gardening has been found to benefit physical, emotional, and psychosocial health, as well as foster community beautification and cohesion (Hale et al., 2011; Okvat & Zautra, 2011). For example, 48 adults with dementia were more actively engaged and demonstrated more positive affect in a horticultural activity than traditional day service activities (Jarrott & Gigliotti, 2010). A large study of 1,500 women and children in domestic violence shelters further revealed gardening can increase positive feelings, including feelings of empowerment and increased adjustment to difficult circumstances (Stuart, 2005). Lee (2010) found that South Korean individuals with intellectual disabilities demonstrated decreased heart rate and cortisol levels following flower pressing and planting. Moreover, a study of cardiac rehabilitation inpatients showed decreased heart rate and distress in a horticultural therapy group, while those in a patient education class demonstrated no significant decreases (Wichrowski, Whiteson, Haas, Mola, & Rey, 2005).

Refugee resettlement agencies throughout the country use community gardens to promote psychological healing, self-sufficiency, community engagement, and a return of human dignity (Chase, 2012; Linden & Grut, 2002). However, little research exists on the correlations between community gardening and wellness outcomes among refugee populations (Chase, 2012; Linden & Grut, 2002). One study has examined the process of developing a refugee community garden using a community coalition, though only qualitative information is provided in their published study (Eggert, Blood-Siegfried, Champagne, Al-Jumaily, & Biederman, 2015). That study reported garden participants anecdotally experienced a deeper sense of community, health, and financial independence as a result of

gardening. This is consistent with reports from nonrefugee populations engaged in community gardening (Carney et al., 2012), which indicate gardening in a community setting fosters family and group connections seen as valuable by participants. No other known research to date has directly studied the outcomes of community gardening for refugee populations. As the available evidence suggests, gardening may serve to boost connectivity and community strengths particularly for groups highly valuing communal functioning and cohesion, and increasing the evidence base of community-focused interventions for refugee populations therefore seems a worthwhile pursuit (Murray, Davidson, & Schweitzer, 2010).

Therefore, the current study explores differences in experiences among Bhutanese refugees resettled in the United States who do versus those who do not participate in community gardening. Based on the available literature, we expected that Bhutanese gardeners would self-report significantly fewer symptoms of distress than the nongardening comparison group of Bhutanese refugees. Bhutanese gardeners were also expected to perceive higher levels of social support than the nongardening comparison group. A mixed-methods design was used. Hypotheses were directly tested via quantitative data, while qualitative data provided a context for interpreting findings and their potential implications.

Method

Participants

Bhutanese refugees were recruited from a local community garden and Bhutanese community networks, and were self-identified into either a community gardening (already members of a local garden; $n = 22$) or nongardening group (were not currently participating in a community garden; $n = 28$). Gardeners were recruited for participation in the study during a meeting held at local community gardens. Additionally, both gardeners and nongardeners were recruited via solicitation by Cultural Ambassadors during community events and meetings, and through word-of-mouth at an apartment complex where a large population of Bhutanese refugees resides. Independent samples t -tests were conducted to examine whether

there were group differences between gardeners and nongardeners on any of the demographic variables. The two community gardens in which the sample participants held plots consisted of 20 to 30, 4 × 8 individual plots, as well as larger plots for group crops. Families often grow on one or two plots, and because there are so few spaces available, hopeful participants typically have to put their name on a waiting list until one becomes available. The majority of plots required some form of transportation to reach. Regarding demographic differences, gardening and nongardening groups differed significantly with respect to housing and medical bills, with gardeners having significantly higher frequency of living in a house than nongardeners [$\chi^2(1, N = 50) = 4.06, p = .044$], and nongardeners having significantly higher medical bills ($M = 193.59, SD = 359.29$) than gardeners [$M = 43.81, SD = 92.13$; Levene's = 6.76, $p = .012$; $t(30.30) = 2.08, p = .046, d = .57$]. A Bonferroni correction was conducted to reduce the probability of a Type I error (see Table 1 for a summary of demo-

graphic variables by condition.) Participants consisted of 62% female ($n = 31$), and 38% male ($n = 19$) adult (mean age = 44.5; $SD = 15.01$) Bhutanese refugees, with 56% in the nongardener condition ($n = 28$) and 44% in the gardener condition ($n = 22$). All participants reported their primary language as Nepali. Female participants were more represented in the current sample due to the fact that males interested in participation generally had greater difficulty finding availability due to long work shifts, often at locations requiring at least a 1-hr commute and transportation coordination with multiple individuals.

Measures

Refugee Health Screener-15. The Refugee Health Screener-15 (RHS-15; [Pathways to Wellness, 2011](#)) is a 15-item screener, available in the Nepali language via the publisher, assessing symptoms of PTSD, anxiety, and depression. Items 1 through 11 and 13 are rated on a Likert-type scale from 0 (*Not at all*) to 4 (*Ex-*

Table 1
Demographics by Group Membership

Variable	Gardener <i>M</i> (<i>SD</i>)	Nongardener <i>M</i> (<i>SD</i>)	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Age	46 (14.32)	43.32 (15.69)	-.62	48	.537	.18
Time in USA (months)	39.78 (27.55)	31.46 (17.17)	-1.24	33.36	.224	.36
Grocery bills (monthly)	\$470.23 (180.08)	\$526.92 (224.16)	.95	46	.345	.28
Medical bills (monthly)	\$43.81 (92.11)	\$193.59 (359.29)	2.08	30.30	.046	.57
Dr. frequency per year	9.93 (12.22)	9.89 (8.91)	-.01	48	.990	.004
Frequencies	<i>N</i> (%)	<i>N</i> (%)	χ^2	<i>df</i>	<i>N</i>	<i>p</i>
Gender						
Female	15 (48.4%)	16 (51.6%)	.64	1	50	.559
Male	7 (36.8)	12 (63.2%)				
Marital status			.08	1	50	.776
Married	18 (81.8%)	22 (78.6%)				
Not married	4 (18.18%)	6 (21.43%)				
Case manager	4 (18.2%)	7 (25%)	.33	1	50	.563
Food stamps	12 (54.5%)	13 (46.4%)	.33	1	50	.569
Medicare/Medicaid	13 (59.1%)	14 (50%)	.41	1	50	.522
Community support group	17 (77.3%)	15 (53.6%)	3.00	1	50	.083
Housing	3 (13.6%)	0	4.06	1	50	.044
Education level			.85	1	49	.356
Some formal education	14 (63.64%)	15 (53.57%)				
No formal education	7 (31.82%)	13 (46.43%)				

Note. Grocery bills (monthly) refers to household estimate provided by participant. Medical bills (monthly) and Dr. frequency per year refers to individual participant estimates. Not married included single, separated, divorced, and widowed participants. Formal education included some high school, high school degree, some college, and college degree, while no formal education included participants who did not receive any schooling, as well as participants who participated in English as a Second Language (ESL) classes.

tremely). Item 12 is a lifetime rating of general adaptability on a scale of 0 (*Able to handle (cope with) anything that comes your way*) to 4 (*Unable to cope with anything*). Item 15 presents an illustrated distress thermometer with rating options from 0 (*No Distress-“Things are good”*) to 10 (*Extreme Distress-“I feel as bad as I ever have”*). A total score of greater than 12 on items 1 to 14 or a score of 5 or more on the distress thermometer is considered indicative of need for referral to mental health services. For the current study, internal consistency ($\alpha = .86$) was good.

Patient Health Questionnaire-15. The Patient Health Questionnaire-15 (PHQ-15; Kroenke, Spitzer, deGruy, & Swindle, 1998) is a 15-item self-report scale of somatization derived from the Patient Health Questionnaire, which has been used previously with refugee populations (Mitschke et al., 2013). This measure has been translated from English to Nepali, using a local translation and interpretation agency that utilizes back-and-forth translation. Patients endorse ratings on items of somatic complaints (stomach pain, back pain, dizziness, etc.) on a scale from 0 (*Not bothered at all*) to 2 (*Bothered a lot*). Total scores of 5, 10, and 15 represent cut-offs for low, medium, and high somatic symptom severity, respectively. The PHQ-15 has previously demonstrated internal consistency of 0.82 (Kocalevent, Hinz, & Brähler, 2013), with acceptable consistency ($\alpha = .72$) found for the current sample.

Medical Outcomes Study Social Support Survey. The Medical Outcomes Study Social Support Survey (MOS SSS; Sherbourne & Stewart, 1991) is a 19-item self-report measure of perceived social support. All items are rated on a Likert scale from 1 (*None of the time*) to 5 (*All of the time*). Originally developed as part of the two-year Medical Outcomes Study (MOS), the measure has subsequently been adapted for use in different settings and countries. As a result, the MOS SSS has previously been used by other investigators studying Bhutanese refugees (Mitschke et al., 2013). The MOS SSS was also translated to English via back-and-forth translation at a local translation and interpretation agency. The measure consists of four subscales: Emotional/Informational Support (convergent validity of $r = .82-.90$; $\alpha = .88$ in the current sample), Tangible Support ($r = .72-.87$; $\alpha = .85$), Affectionate Support ($r = .80-.86$;

$\alpha = .75$), and Positive Social Interaction ($r = .87-.88$; $\alpha = .90$; see Sherbourne & Stewart, 1991 for a full understanding of convergent validity statistics). A total score is also generated ($\alpha = .89$ in the current sample).

Adapted Client Assessment Tool. The Adapted Client Assessment Tool (ACAT) is an orally administered tool utilized by a local refugee resettlement agency in evaluating refugee clients' progression toward functional adaptation, and has been adapted to fit the population sample. Participants were asked to describe their current mastery or independence in 13 domains of functioning which included: housing, food, finances, transportation, personal safety, health, rights/responsibilities and legal protection, legal documents, social adjustment/support, links to services/institutions, English skills, child welfare, and employment. Each domain is briefly screened for independence or mastery, and rated on a 5-point scale, with 5 indicating highest level of adaptation (e.g., “Highly confident about securing food and preparing meals” for Food), and 0 indicating a lack of independence or adjustment (e.g., “Unable to secure food or prepare meals independently”). For use in the current study, a question pertaining to English proficiency was modified from a family unit focus (“Members of the household . . . lack any English skills”) to an individual focus (“I lack any English skills”). This measure was used in a screening format, and no participants completed it as a self-report measure, which is consistent with how the measure was originally used by the local refugee agency where it was acquired. The ACAT demonstrated good internal consistency ($\alpha = .91$) in the current sample.

Semistructured interviewing. In keeping with best practice recommendations (APA, 2010), qualitative information was also gathered to assess local acculturation, social support, and gardening. Questions were derived from suggestions provided by local refugee resettlement agencies and Bhutanese community leaders. Sample questions asked in the semistructured interview include: *What do you talk about while gardening with other people? How well do you think you have adjusted to life in the U.S.? and What do you like or dislike about gardening in the community garden?* Nongardeners were not asked questions about current gardening experiences. They did, however, an-

swer questions about past gardening experiences (as did gardening participants), whether they grew anything at their apartments in some manner, and they were asked to discuss why they were not currently participating in a community garden.

Procedures

Four Bhutanese community leaders (cultural ambassadors) with previous translation and interpretation training were recruited to assist with translation, participant recruitment, data collection, and interpretation. Cultural ambassadors first attended training on psychological research ethics and confidentiality and learned how to administer the study measures. These community leaders were also consulted throughout data collection and data interpretation processes to ensure accuracy and cultural salience. Cultural ambassadors were compensated for their time at a rate comparable to a local interpretation agency (\$35 per participant interview).

All participants resided in the same local area. Recruitment for the gardener condition was accomplished via in-person visits to established community gardens, while nongardener comparison group participants were recruited during community events and meetings. Prior to recruitment, the first author formed and maintained an ongoing relationship with Bhutanese community members and leaders, attending the community garden weekly for a 9-month period before data gathering ensued. The IRB-approved consent form was translated into Nepali by a professional translation firm with an established track record and good reputation among area refugee agencies. Participants were provided a copy of the informed consent form and all standard procedures were followed for confidentially maintaining records. Participants were given the option to complete measures independently (in English or Nepali, at their preference) or for measures to be orally administered in Nepali. Only two participants elected to complete measures on their own. Orally administered measures and questions were read aloud by cultural ambassadors, who also provided clarification for any participant questions related to cultural or linguistic nuances, and responses were interpreted aloud for recording in English. All semistructured interview ques-

tions were orally administered via this same process with the cultural ambassadors.

All participants were compensated \$15 for their time. Scores on the RHS-15 and PHQ-15 were calculated immediately following administration, and referrals to local resources (i.e., case management, mental health care, community support groups) were provided for participants who scored greater than 12 on items 1 to 14 (referrals totaled $n = 16$; 32%; gardeners $n = 6$; 27.27%; nongardeners $n = 10$; 35.71%) or 5 or more on the distress thermometer ($n = 19$; 38%; gardeners $n = 9$; 40.91%; nongardeners $n = 10$; 45.45%) of the RHS-15, or who scored more than 5 on the PHQ-15 ($n = 27$; 54%; gardeners $n = 14$; 63.64%; nongardeners $n = 13$; 46.43%), as recommended by test developers for each of those measure. Overall, 27 participants received referrals to local resources, which was accomplished by providing the participant with a printed list of local providers (in English), reviewing which would be relevant to the specific participant needs, and making any notations in Nepali as requested. If the participant was unable to read in either Nepali or English, the referral information was reviewed with a family member who did feel confident reading in either language. Following data analysis, results were presented to participants during group forums to solicit their feedback on results and develop a culturally salient understanding of the data.

Following quantitative hypothesis testing, qualitative information was used to develop a nuanced understanding of the findings, as well as provide information on participants' experiences with gardening and living in the United States as Bhutanese refugees. For clarity in findings, quantitative and qualitative results are separately outlined in the Results section; however, they are subsequently integrated in the discussion section.

Consensual Qualitative Research (CQR; Hill, Thompson, & Williams, 1997) procedures were used to analyze qualitative data gathered during interviews. As recommended by Hill et al. (1997), eight cases from the gardener condition were selected based on having the most extensive responses to questions. Hill et al. (2005) note analysis of 8 to 12 cases lends a stable understanding of the dataset. Answers to interview questions were transcribed in English and then two research assistants trained in CQR

underwent the coding process, which was audited by the principal investigator (PI).

Prior to the first step of coding, the PI and coders developed an initial list of Domains expected for the data, based on a review of the relevant literature on refugee and Bhutanese populations, and community gardening experiences (see Table 4 for a summary of Domains, Categories, and Frequencies). Domains were developed, changed, or dropped, in accordance with Hill and colleagues' (1997) procedures. After coders reached consensus on all individual transcripts, they constructed Core Ideas, for each transcript's Domains. Thus, each participant protocol scored had Core Ideas summarizing their individual experiences within the assigned Domain. While this step is often initially carried out independently, followed later by consensus, Hill et al. (2005) has suggested consensual construction of Core Ideas can lead to more robust discussion and understanding of the data. Core Ideas were therefore generated jointly by coders and later audited by the PI. The final step in CQR was for coders to jointly construct Categories that represent information expressed in each Core Idea across participants; this process allows for cross-analysis of the data, interpretation, and generalizability to the sample. Again, coders worked as a team, agreeing upon appropriate categorizations with the primary investigator serving as the auditor following consensus. To provide a voice to nongardener participants, the entire process of CQR was also carried out to explore four nongardener participants. As with gardening participants, cases were selected based on the quantity of information, without reading responses directly before coding. Only four cases were found to have enough information for qualitative coding; therefore, standard analytical categorizations do not apply to these cases. They are included, however, to provide a qualitative nongardener perspective, though the amount of information gleaned is relatively limited compared to gardening participant data. Relevant Categories are included in Table 4.

Results

Quantitative Analyses

Assumptions of independent samples, a normal distribution, and homogeneity of variances

were confirmed, no data were transformed, and no patterns of missing data were observed. Examination of box plots and Tukey interquartile ranges revealed no significant outliers. Independent samples *t* tests were performed with Bonferroni correction. Distress in gardeners versus nongardeners was not significantly different as indicated by the Refugee Health Screener. Although not statistically significant, a small to medium effect size ($d = .36$; 95% mean CI $[-.21, .91]$) was found for scores on the PHQ-15, with gardeners evidencing more somatic complaints than nongardeners (see Table 2 for additional descriptive statistics).

Gardeners reported greater social support than nongardeners, $t(48) = 2.47, p = .017$, with a moderate to large effect size ($d = .70$; 95% CI $[.12, 1.27]$). Examination of social support subscales revealed that gardeners reported significantly more tangible social support than nongardeners, $t(48) = 3.07, p = .004$, generating a large effect size ($d = .88$; 95% CI $[.28, 1.45]$). A medium effect size was observed for emotional/informational social support ($d = .53$; 95% CI $[-.04, 1.09]$) and small to medium effects were observed for affectionate support ($d = .34$; 95% CI $[-.23, .89]$) and positive social interaction ($d = .31$; 95% CI $[-.26, .86]$).

Exploratory correlational analyses were conducted to examine relationships between participant time in the United States, age, and each of the dependent measures. Participant adjustment (ACAT) was significantly related to time in the United States ($r = .30, p = .033$; 95% CI $[.02, .53]$), with functional adjustment increasing with time (see Table 3). Age was positively associated with symptoms of distress and somatic complaints, as measured by the RHS-15 Total score ($r = .34, p = .014$; 95% CI $[.06, .56]$), the RHS-15 Distress scale ($r = .30, p = .033$; 95% CI $[.02, .53]$), and the PHQ-15 ($r = .29, p = .043$; 95% CI $[.01, .53]$). Age was additionally significantly related to perceived emotional/informational social support ($r = -.38, p = .007$; 95% CI $[-.60, -.11]$), with perceived support decreasing with age.

Qualitative Analyses

As described more fully in the data analytic plan, qualitative results were analyzed using conventions offered by Hill et al. (2005) to

Table 2
Independent Samples *t*-Test for Group Differences in Social Support and Measure Descriptives by Group

MOS SSS scale	Condition	<i>M</i>	<i>SD</i>	Levene's <i>F</i>	<i>p</i>	<i>t</i> (48)	<i>p</i>	<i>d</i>
Emotional/Informational	Gardener	23.09	6.63	.30	.59	1.87	.068	.53
	Nongardener	19.57	6.60					
Tangible	Gardener	15.45	3.07	.98	.33	3.06	.004*	.88
	Nongardener	12.57	3.47					
Affectionate	Gardener	10.09	2.88	.38	.54	1.18	.242	.34
	Nongardener	9.11	2.95					
Positive social interaction	Gardener	9.73	2.95	5.44	.02	1.07	.291	.31
	Nongardener	8.64	3.97					
MOS SSS Total	Gardener	61.32	13.21	.002	.96	2.47	.017*	.70
	Nongardener	52.46	12.08					
Scale	Condition	<i>M</i>	<i>SD</i>					
RHS-15 Total	Gardener	11.55	9.17					
	Nongardener	11.00	9.91					
RHS-15 Distress Thermometer	Gardener	3.68	2.70					
	Nongardener	3.52	3.27					
PHQ-15 Total	Gardener	7.41	5.05					
	Nongardener	5.71	4.56					
ACAT Total	Gardener	37.95	9.64					
	Nongardener	37.86	9.49					

Note. ACAT = Adapted Client Assessment Tool; MOS SSS = Medical Outcomes Study Social Support Survey; PHQ-15 = Patient Health Questionnaire-15; RHS-15 = Refugee Health Screener-15.

* indicates significant values at $p < .01$.

describe information gathered from examining category frequencies. Interrater reliability statistics were not calculated, as coders worked toward consensus using live documents while moving through the data. Qualitative information has been included, where relevant, from coded nongardener cases, in order to provide a more robust understanding of gardener experiences. A summary of Domains, Categories, and Frequencies used to code and interpret data are provided in Table 4, while the results presented below provide a more nuanced description of these results than represented in the table.

General findings. Results represented in all, or all but one, cases are considered “general” findings in Hill et al. (2005) conventions. Gardeners felt moderately to well-adjusted to living in the United States, and they were aware of how to maintain and adhere to requirements

of their refugee status (i.e., obtaining necessary documentations, adhering to medical examination requirements). Gardeners reported several areas of practical social support, including living with family members, having friends and family within their immediate community, having access to a vehicle, and finding out about community gardening opportunities through neighbors or community leaders.

Gardening provided opportunities to develop new relationships and connect with their cultural roots. While gardening, participants often discussed memories of Bhutan and Nepal, exchanging stories of their home country, with one participant also befriending a family from another country. This participant reported they shared stories of their respective countries as well as practical information. Many gardeners had engaged in some type of cultivation prior to

Table 3
Pearson Correlations of Relationships Between Time in the USA and Dependent Measures

Scale	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
Outcome												
1. Time in USA (months)	35.13	22.48	—									
2. RHS-15 Total	11.24	9.50	-.08	—								
3. RHS-15 Distress Thermometer	3.59	3.00	.21	.51**	—							
4. PHQ-15 Total	6.46	4.81	.19	.71**	.51**	—						
5. MOS SSS Emotional/Informational	21.12	6.78	-.11	-.27	-.25	-.18	—					
6. MOS SSS Tangible	13.84	3.57	.06	.04	.11	.07	.18	—				
7. MOS SSS Affection	9.54	2.93	.03	-.03	-.03	-.06	.65**	.39**	—			
8. MOS SSS Positive Social Interaction	9.12	3.57	.18	-.20	-.03	-.09	.44**	.06	.61**	—		
9. MOS SSS Total	56.36	13.23	.06	-.20	-.10	-.10	.86**	.48**	.87**	.68**	—	
10. ACAT Total	37.90	9.46	.30*	-.38**	-.12	-.30*	.22	.17	.07	.11	.22	—
11. Age	44.50	15.01	.09	.34*	.30*	.29*	-.38**	.10	-.08	-.03	-.18	-.27

Note. ACAT = Adapted Client Assessment Tool; MOS SSS = Medical Outcomes Study Social Support Survey; PHQ-15 = Patient Health Questionnaire-15; RHS-15 = Refugee Health Screener-15.

* indicates significant values at $p < .05$. ** $p < .01$. *** $p < .001$.

moving to the United States, such as caring for animals or crops in Bhutan and gardening in Nepal. Other participants reported feeling as if they were back in Bhutan when at their garden plot. One gardener remarked, “So many people don’t have work and stay all day in apartments. Here others say they feel like they’re back in Bhutan in the garden.” Other general findings included praying for health and production of crops, and a desire for larger plots closer to their apartment complexes due to difficulties with transportation. All nongardeners reviewed stated they were unable to participate in the garden due to limited consistent accessibility.

Typical findings. Results represented in more than half of the cases are considered “typical” findings by the conventions of Hill et al. (2005). Gardeners typically reported autonomy/independence and self-efficacy. They felt confident advocating for themselves in a work context, communicating with a child’s school, or attending medical appointments independently. In contrast, nongardeners typically struggled with navigating new systems and experienced many barriers throughout their transition. Gardeners reported that limited English proficiency was a common barrier to adjustment, and social support was one of their greatest resources in this process. Gardeners identified the garden as a place to strengthen relationships and share practical information with each other (e.g.,

which seeds to use, where to access public benefits, etc.). One gardener specifically highlighted reconnecting with familiar faces in the garden context: “I meet the neighbors from refugee camp or Bhutan. People I haven’t seen in years, I now meet in the garden.” Gardeners also highlighted several benefits of gardening, including the ability to save money on produce, fostering a sense of independence and pride, and appreciation for being able to support family members with produce grown in the garden. Another participant stated “I have a garden in America and very proud of being a gardener and picking with my own hand to cook and share with others.”

Variant findings. Two to four cases represented in a category are considered “variant” findings by Hill et al. (2005) conventions. Variant responses reflected a perception of improved living and school opportunities for their children, as opposed to prior conditions in refugee camps. Diverse preexisting health concerns, financial barriers, and abilities to utilize public financial benefit services were also reported. Gardening also provided opportunities for mindfulness and sensory awareness. Some gardeners noted an appreciation for the opportunity to “touch some soil,” taste delicious produce, and watch things grow. Gardeners also identified nutritional benefits, health benefits (e.g., alleviation of dizziness and visual strain), phys-

Table 4
Consensual Qualitative Research Analysis Results: Domains, Categories, Frequencies, and Respondents
 (n = 8)

Domains	Categories	Frequency	Respondents
1. Practical social support	A. Lives with family members	General	8
	B. Had family/friends in area prior	Typical	6
	C. Has family/friends in area currently	General	8
	D. Transportation within family	General	8
	E. Receives financial help from family	Variant	4
	F. Family/friends help with plot maintenance	Typical	6
	G. Received help with coming to US	Variant	3
	H. Heard about plot from someone	General	8
	I. Received help with adjustment	Typical	6
	J. Helped others	Variant	3
	K. Helped others with garden things	Variant	3
	L. Receiving help with public benefits/documentation	Variant	4
2. Emotional social support [And K. (17) J. Helped others (08)]	M. Garden is a place for sharing	Typical	6
	N. Talked about country of origin	General	8
	UU. Talking and sharing within community		1
3. Health problems	O. Various preexisting health struggles	Variant	3
4. Health improvement	P. Health improvement related to garden	Variant	4
	Q. Medical experience better in US	Variant	3
5. Financial problems	R. Financial barriers to meeting family needs	Variant	4
6. Financial benefits	S. Saved money from garden	Typical	6
	T. Financial benefits (gov't related)	Variant	2
7. Mindfulness/Sensory experience	U. Garden provides opportunities for mindfulness	Variant	4
	V. Enjoys the taste of greens	Variant	4
8. "Other"	W. Refugee status has consequences	Variant	3
10. Teaching/learning	X. In process of learning English	Variant	4
	Y. In Process for Citizenship	Variant	3
11. Language barriers	Z. Limited by lack of English proficiency	Variant	2
12. Reconnection with Bhutan/Nepal	AA. Used to work garden in past	General	8
	N. Talked about country of origin	General	8
13. Culture/Tradition	BB. Gardening in relation to religion	General	8
	AA. Used to work in garden in past—childhood	Variant	2
15. Mental health changes	CC. Gardening related to peaceful, happy feelings and lowers stress	Variant	4
16. Nutrition	DD. Receive nutrition from garden plants	Variant	3
17. Independence	EE. Self-efficacy	Typical	7
	FF. Financial independence	Variant	3
	GG. Garden facilitates independence	Typical	5
20. Change in relationships	HH. New relationships fostered by garden	General	8
	II. Strengthening of relationships related to garden	Typical	6
21. Physical activity	JJ. Garden helps with exercise	Variant	4
22. Gardening "other"	KK. Frequency of garden engagement	General	8
	LL. Discussion of specific produce	Typical	5
	MM. Grows at home	Typical	6
	TT. Preference for more space in garden	General	8
	XX. Gardening is an experience of something living		2
	YY. Barriers to accessing a community garden		4
23. Practical adjustment	NN. Benefits/health screenings, and knowledge of healthcare policy	General	8

Note. Bolded text indicates categories added from nongardener analysis, standard conventions not applied due to small sample size (n = 4).

ical benefits (e.g., exercise and stretching), and general improvements in mental health. Specifically, one gardener reported:

If our mind is thinking deeply or wandering, if I go to my plot it turns mind to useful. As the seeds grow, so our minds grow too. If there would be a big garden I'd make it well decorated so our mind will also get relief there.

Related, one nongardener detailed his experience with his conceptualization of mental illness as follows:

Only a single person in a room sitting, it creates mental illness. It's all about the money. I could have bought a big house and big land. I left it all in Bhutan. Always thinking of that, it makes a mental illness. If there had been a small land it would go. But we don't have anything. We don't have animals, we don't have land, we don't have anything. It makes mental illness.

Participant Feedback on Results

Following conclusion of data analyses, participant meetings were held to share study findings and solicit further insight from an emic perspective. Eleven participants were present at the first meeting, with all but one having current access to a plot, and seven were present at the second meeting, all of whom were nongardeners. All participants were informed of these meetings during data collection. Each participant was again contacted following data analysis and offered an opportunity to voluntarily participate in this portion of the study.

Gardeners affirmed findings related to social support and strengthened social networks via garden participation. Nongardeners also supported the quantitative findings by remarking people are able to better establish connections when actively engaged together. Similar to responses collected during the initial data collection, all participants reaffirmed a desire for greater availability of gardening space. Although grateful for opportunities to cultivate, gardeners emphasized transportation limitations and the need for larger plots. All participants expressed experiencing limitations based on age, physical disabilities, and language barriers, and said they were unable to ask capable family members to advocate for additional gardening opportunities because these family members were already busy working to support the family. One garden participant specifically proposed:

If garden opportunities [available], should not be through the refugee agencies, but come to the ground. If places want to give opportunities they should come to the ground and have these programs be run by the people so the most needy actually get help. We know their needs.

In regards to the nonsignificant association between distress and gardening, gardening participants were not surprised by results. They suggested individuals who are able to work (described as necessitating stable health and reliable transportation) typically have no time for gardening, in comparison to older community members with chronic health concerns who may be more likely to garden as a means of entertainment and contribution. Nongardeners actually stated to the contrary, noting observations that those with access to a garden appeared to have better health than similarly unemployed nongardeners.

In discussion of differences between quantitative and qualitative results, participants in the focus groups indicated many had experienced discomfort voicing their problems during individual interviews. This may have led to underreporting of adjustment difficulties during the semistructured interview and on the ACAT. Specifically, one gardener commented:

When you say 'How are you?' no one says 'I'm bad', even when I have problems inside. And it's one of the first phrases we learn in English!

Another gardener, who was observably younger than other participants at the meeting, stated:

The elder people do not have other option than saying 'I'm adjusted' because likely to be inside the house with closed doors. They want to go outside and talk but language and transportation barriers. They feel like 'What else is there I can say?'

Finally, after discussing findings with the group of nongardeners, participants turned conversation to other primary concerns. Specifically, obtaining citizenship was a large source of distress for aging individuals, who would lose access to any public benefits if unable to establish citizenship within the first seven years of residency. One participant in particular said that she never had formal schooling as a child, yet was required to answer paper and pencil questions in English as part of the citizenship test. Though she has been in ESL and citizenship classes for three years, she was still unable

to write the alphabet unassisted. Other participants joined her in stating that they felt as if they had nowhere to belong to and nothing productive to engage in. All participants asked for advocacy on their behalf in order to gain access to opportunities that could enable them to once again become contributing members within their families and communities.

Summary and Discussion

Bhutanese gardeners reported significantly more social support, especially tangible social support (e.g., help with chores or meals if sick), compared to nongardeners. This is particularly notable, in light of all but one participant reporting that they live with multiple family members, which is considered typical in Nepali Bhutanese families, thus providing at least some social contact and support regardless of condition. Qualitative findings further supported the finding that gardening provided opportunities to develop new supportive networks, learn how to access practical services, and engage others through mutually valued activities. These findings have important implications given extant literature on the toll social isolation can take on mental health and wellbeing, particularly among individuals from heavily communal societies (APA, 2010; Benson, Sun, Hodge, & Androff, 2012; Keyes, 2000; Pumariega et al., 2005).

Relatedly, the qualitative data indicated that gardeners viewed the community growing space as a place to reconnect with cultural roots. Many gardeners described the importance of gardening for emotional experiences and memories of the homelands from which they are now separated. Conversations about types of produce, planting and harvesting techniques, similarities in greenery, and other comparisons between cultivating in Bhutan, Nepal, and the United States fostered connectedness through shared identities. This is a key finding, given that refugees and stateless persons often feel a loss of identity, or cultural bereavement (Eisenbruch, 1991), that fosters hopelessness and helplessness (Human Rights Watch, 2007; IOM, 2008; Schäppi, 2005).

Gardeners and nongardeners alike reported higher levels of somatic complaints, but less overall distress, compared to general U.S. pop-

ulation reports using the same measure (Kocalevent et al., 2013). Qualitative information from the group feedback session depicted those with most opportunity to garden as typically elderly or unable to work due to chronic health problems. This is contradictory to the previously mentioned quantitative findings, in that gardeners reported significantly lower medical bills. This discrepancy may be related to availability of social support in attaining financial and public services for elderly or disabled individuals engaged in community gardening; however, more research is needed to clarify these issues.

Observed difficulties in promoting individual needs appear consistent with other reports of valued communal harmony (APA, 2010; Dutton, 2011; Pumariega et al., 2005). When able family members sacrifice personal needs to serve the family unit, less self-sufficient family members may be hesitant to advocate for personal needs. Desires for activities that disabled or elderly individuals could use to support family members and promote individual wellbeing were widely expressed in the current study. Participants shared frustrations regarding learning a new language in the context of advancing age and limited formal education. They cited chronic health problems and disabilities as barriers to attaining gainful employment and supporting their families financially.

In addition to the importance of harmony and contribution, participants also discussed the importance of staying active for good mental health. Participants described the benefits of physical activity and the peaceful effects of being surrounded by greenery and feeling reconnected to their home countries (also supported by reports from Chase, 2012; Kohrt & Hruschka, 2010). The data from this sample indicate that participants may be underutilizing more formal pathways for improved health (e.g., psychological, case management, or other health related services); while the majority met criteria for referral to such services, only a small number of participants had previously used them. This observation is consistent with reports of stigma associated with seeking mental health care in communal populations (Kohrt & Hruschka, 2010; Shannon et al., 2015).

Implications, Limitations, and Future Directions

Demographic variables and reported difficulties with adjustment and health concerns are consistent with previous research conducted within refugee populations living in the United States (APA, 2010; CORC, 2007; Pumariega et al., 2005). Study results may be cautiously generalized to other Bhutanese refugee populations resettled in the United States, but it is unknown whether they would generalize to other refugee populations.

With respect to limitations, self-selection to group membership resulted in gardeners demonstrating significantly more likelihood than nongardeners to live in a house rather than an apartment and to have lower medical bills. Although random assignment might have prevented such differences and would have been preferable from a research design perspective, randomization would have been adversely disruptive to the ethos of the established community. Although the study measures performed well psychometrically, feedback from participants suggested that some may have been hesitant to fully disclose and elderly participants with physical limitations may have had difficulty obtaining certain benchmarks, no matter how much psychological support they receive. Finally, although the sample size was sufficient for hypothesis testing, small to moderate effect sizes may have been missed.

Throughout the current study, participants requested results be used to advocate for large, open and accessible garden spaces, as well as address other chronic stressors. Participants shared many ways in which their resettlement experience has been disappointing, and they are in search of opportunities to simultaneously increase their psychosocial wellbeing and contribute to overall family stability. Previous research has called for community resources and education to address mental illness and distress within refugee communities, as well as to provide further assistance navigating the confusing social and economic systems (CDC, 2012, 2013). Community-enacted support for suffering individuals, when properly utilized, has potential to halt progression of distress into more severe mental illness (Chase, 2012). Advocacy could include refugee populations outside the Bhutanese community, so that varying communities

can join together to address shared struggles using diverse cultural nuances and strengths. This includes refugee groups resettled in different countries, as well as those members of host countries willing to bolster vulnerable human populations and improve the greater society through diversity of strength.

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Received August 15, 2015

Revision received June 30, 2016

Accepted July 6, 2016 ■