Do Instrumental and Expressive Traits Play a Role in Health-Promoting Behaviors?  
A Study among Former Young Caregivers

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Abstract

The relationship between former young caregivers’ personalities and their health-promoting behaviors once they reach adulthood has not been studied. In the present study, former young caregivers were assessed on the relationship between their instrumental and expressive traits and health-promoting behaviors. Forty-nine former young caregivers completed a demographic questionnaire, the Personal Attributes Questionnaire, and the Health Promoting Lifestyle Profile II. Former young caregivers’ level of instrumental traits explained variance in their health-promoting behaviors for the total HPLPII, Spiritual Growth, and Stress Management subscales (10, 19, and 9%, respectively), after controlling for demographic characteristics. Former young caregivers’ instrumental and expressive traits explained variance in their health-promoting behaviors for the Interpersonal Relations subscale (32%), after controlling for demographic characteristics.

Keywords: former young caregivers, health behaviors, instrumental & expressive traits, spiritual growth, stress management, interpersonal relations

An estimated 43.5 million unpaid caregivers play an essential role in our society for their help in caring for adults and children in the United States (note. based on online data collected during 2014, The National Alliance for Caregiving and AARP, 2015). The health-related behaviors of these caregivers is important to assess because health-related behaviors may be linked to caregivers’ abilities to continue to care for loved ones (Burton, 1997; Byers et al., 2011; Vitaliano, Zhang & Scanlan, 2003). There has been some evidence from reviews and meta-analyses that caregivers are at increased risk of physical health problems compared to non-caregivers, especially those providing care for dementia patients (Lovell & Wetherell,
2011; Pinquart & Sörensen, 2003; Vitaliano et al., 2003). However, more recent population-based studies showed caregivers had less mortality risk compared to non-caregivers (see Roth, Fredman & Haley, 2015 for detailed discussion), and this was more likely in female caregivers who perceived themselves as having less stress from the caregiver role (Fredman, Cauley, Hochberg, Ensrud & Doros, 2010).

While researchers may continue to debate if there is increased risk of mortality linked to caregivers, caregivers’ health-related behaviors are a critical component of their physical health. For example, Burton (1997) found that caregivers do not get enough rest, exercise less, and forget to take their medications more than non-caregivers. When caregivers are not getting consistent sleep or exercise, these health-related behaviors can have an effect on their overall health and performance as caregivers (Vitaliano et al., 2003).

The study of health-related behaviors and theoretical models about our reasons for performing those health behaviors have been around for more than six decades (Carpenter, 2010). During the 1980s and 1990s much research was focused on health-promoting behaviors, in part, because of the objectives described in the Healthy People 2010 (U.S. Department of Health and Human Services, 2000). Pender provided the original Health Promotion Model which includes two groups of factors including those known as modifiers (i.e. situational, personal, and interpersonal characteristics) and factors related to cognition and perception (Pender, Walker, Sechrist & Stromborg, 1988). After the initial research on this model, revisions were made to the model (Pender, 1996; Pender, Murdaugh & Parsons, 2002), and these models were used in instrument development including the development of the Health Promoting Lifestyle Profile II (Walker, Sechrist & Pender, 1987) and revisions with the Health Promoting Lifestyle Profile II (Walker & Hill-Polerecky, 1996), respectively.

There has been some research on caregivers that has included the HPLP-II over the past 20 years (Hulme et al., 2003; Hulsman, 2011; Lee, 2006; Perez-Fortis, Diez & Padilla, 2012). Acton (2002) found that caregivers for spouses with probable Alzheimer’s disease had lower scores on the total HPLP-II scale and all subscales but nutrition when compared to non-caregivers. Lee (2009) assessed the HPLP-II with rural and urban spouse caregivers, and she found no difference between groups on HPLP-II total score or subscales. She found that the most reported health promoting behaviors were interpersonal relations, spiritual growth and stress management, and the least practiced health promoting behavior was physical activity.

This growing body of research findings on health-promoting behaviors is beneficial; however, the focus of the research has been solely on adult caregivers. While it is true that the majority of caregivers are adult caregivers, one can become a caregiver at any point in the lifespan from early childhood through the oldest members of society (Shifren, 2009). There are an estimated 1.4 million individuals who are now viewed as child or adolescent caregivers for siblings, parents and/or other adult relatives (those 8 to 18 years old; Hunt, Levine & Naiditch, 2005). There are an estimated 3.6 to 5.5 million caregivers in emerging adulthood (18 to 29 years old; Arnett, 2007), a developmental period argued to be between adolescence and young adulthood in terms of identity development, jobs, and relationships (Schwartz, Côté & Arnett, 2005).

There is no research on health-promoting behaviors using the HPLPII that focuses on
child and/or adolescent caregivers and emerging adult caregivers. There is also no research including the HPLP-II that focuses on those who were young caregivers that have now reached adulthood. Researchers do not know how or if early caregiver experiences may affect adult health-promoting behaviors as assessed with the HPLP-II, and they lack knowledge of the relation between situational and personal characteristics that may be associated with the health-promoting behaviors of these caregivers.

In a recent review of the young caregiver literature, Kavanaugh et al. (2016) found that only one study was available on health-related behaviors in young caregivers (Shifren & Chong, 2012). Shifren and Chong conducted a study on former young caregivers and their current health-related behaviors in adulthood. Individuals were defined as young caregivers if they provided basic and/or instrumental care to parents or adult relatives while under age 21. Their study had 35 female former young caregivers and a comparison group of 94 female non-caregivers. These researchers used an unpublished measure of health-related behaviors developed by Berkman and Breslow (1983) for the Alameda County Study. This health-related behavior measure includes ten items (e.g., smoking, drinking, exercise habits, and safety precautions). Shifren and Chong (2012) found that former young caregivers had health-related behaviors that were not statistically different from the non-caregiver sample of adults, with one exception. Former young caregivers reported significantly less consumption of alcoholic beverages than adult non-caregivers. They also compared their results to a community sample of adults and found no statistical difference in the total score for health-related behaviors between their former young caregiver group and a community sample of adults (Hooker & Kaus, 1994).

This seems to indicate that the former young caregivers do not appear to have health-related behaviors that are more risky than non-caregivers. One could argue that former young caregivers have at least some better health-related behaviors in adulthood than non-caregivers, since Shifren and Chong (2012) found that former young caregivers consume less alcoholic beverages compared to non-caregivers.

The work by Shifren and Chong (2012) does give some information on health-related behaviors in former young caregivers; however, the study did not use the HPLP-II derived from the Pender Health Promotion Model. Furthermore, Shifren and Chong (2012) did not include assessment of personal characteristics that may be associated with health-promoting behaviors such as personality characteristics.

Individuals’ personality characteristics may affect caregivers’ perceptions about their own health over time (Hampson, Edmonds, Goldberg, Dubanoski & Hillier, 2013; Murray & Booth, 2015), and their decisions to perform health-promoting behaviors such as health screening (Armon & Toker, 2013) and performing physical activities (Wilson & Dishman, 2015). Providing care for a parent or adult relative while one is a child, adolescent, or emerging adult may have profound effects on an individual’s perception of and decisions about his/her own health and health-related behaviors over time. While some individuals may feel that there is nothing they can do to affect their health, others may believe that pursuing health-promoting behaviors may reduce their risk of becoming ill like their relatives (Shifren, 2009).

The personality characteristics chosen for the present study are those linked to gender role orientation, traditionally known as “masculine” and “feminine” traits. These
traits were chosen for two reasons. First, these personality characteristics develop, at least partially, through socialization (Helgeson & Palladino, 2012; Huyck, 1996). The socialization process involved in a young caregiver’s life experiences may be profoundly affected by the caregiver role (Greene, Cohen, Siskowski & Toyinbo, 2016; Siskowski, 2006), and it is possible that these young caregivers’ personality characteristics may be affected by the caregiver role, too. Second, these traits have been associated with health-related behaviors in adolescent, emerging adult, and young adult samples (Baffi, Redican, Sefchick & Impara, 1991; Dinh, Sarason, Peterson & Orstod, 1995; Helgeson & Palladino, 2012; Shifren, Furnham & Bauserman, 2003; Sloan, Conner & Gough, 2015; Zimmermann, Sieverding & Müller, 2011).

Some researchers argue against the use of the terms “masculinity” and “femininity” (Donnelly & Twenge, 2016; Hoffman & Borders, 2001; Twenge, 1997) in research using the Bem Sex Role Inventory (BSRI, 1974) and/or the Personal Attributes Questionnaire (PAQ, Spence, Helmreich & Stapp, 1974), as most individuals in studies are not endorsing terms as masculine or feminine now (Hoffman & Borders, 2001). Researchers argue that society’s view of masculine and feminine traits has changed over time (Hoffman & Borders, 2001). Due to ongoing debate about these traits being linked to gender role orientation (Donnelly & Twenge, 2016; Spence, 1993), they have been labeled “instrumental” reflecting an agentic orientation and “expressive traits” reflecting a communal orientation (Shifren et al., 2003) in the present study. Instrumental traits are characteristics such as assertiveness and independence (Evans, Frank, Oliffe & Gregory, 2011), and expressive traits are characteristics including caring and dependence.

Two models that have primarily been used in relation to mental health research have been examined in relation to health behaviors as well (Shifren et al., 2003): the androgyny model and the masculinity model. The androgyny model proposes that both instrumental and expressive traits in an individual provide the individual with a more flexible identity and superior adjustment (Bem, 1974). The masculinity model is based on the argument that a strong masculine identity (i.e., high levels of instrumental traits) is better for psychological adjustment due to the way that society values these traits (Whitley, 1985). There is some research support for the androgyny model in relation to health behaviors (Shifren & Bauserman, 1996; Shifren et al., 2003). Instrumental traits may be useful for helping one to pursue physical activities (Sloan et al., 2015), but more expressive traits may help one avoid consumption of alcohol (Zimmermann et al., 2011). There is also recent work on the subscales of the HPLPII (Houle et al., 2015) in non-caregiver groups of male adults, and the use of a different measure that captures masculine ideology. Those males who endorsed traditional masculine norms tended to report less health-promoting behaviors (Houle et al., 2015).

While there are some studies including instrumental and expressive traits and health promoting and risk behaviors within the general population, the caregiving literature has mostly ignored the relation between these personality traits and health-related behaviors.

Within the adult caregiver literature, there are several recent studies that have focused on instrumental and expressive traits, though none have been specific to health-promoting behaviors. Baker, Robertson and Connelly (2010), using the PAQ, found that instrumental and expressive traits were linked negatively to personal strain.
Robinson, Bottorff, Pesut, Oliffe and Tomlinson’s (2014) review of male family caregiver studies included 30 studies and discussed how males differ from females on what caregiving tasks they will do. Findings showed men negotiate the caregiver role in such a way as to maintain their masculinity. For example, a male caregiver may state that his role is important, that he must be strong to endure the caregiver role. Male caregivers found food preparation, bathing, and dressing tasks as challenging, mostly because they viewed the tasks as feminine tasks, which they were not socialized to do.

Most recently, there has been investigation of instrumental and expressive traits in a caregiver sample that included a measure of physical health on a health-related quality of life measure. Duggleby et al. (2016) found that caregivers’ masculine gender identity (using the BSRI) was associated with improvements in their mental health, but no gender identity category (masculine, feminine, androgynous) was associated with their physical health on the health-related quality of life measure for a sample of older widowed men who had provided care for a spouse. Unfortunately, this study did not include a measure of health-promoting behaviors, so the relation between these personality traits and health-promoting behaviors in caregivers remains unknown.

1.0. Present Study

The purpose of the present study was to assess the relation between instrumental and expressive traits and health-promoting behaviors in former younger caregivers. In the present study, the HPLPII was used to assess former young caregivers’ health-promoting behaviors. Individuals were considered “youth caregivers” if they provided care for a parent or adult relative for at least one month while under 18 years old. Individuals were considered “emerging adult caregivers” if they had provided care for a parent or adult relative for at least one month while between 18 and 29 years old. Care was defined as basic activities of daily living (BADLs) such as bathing, dressing, feeding, and/or instrumental activities of daily living (IADLs) including doing the finances, driving a parent to a doctor’s appointment, helping with the medications, and performing household duties. There is still debate about the definition of a young caregiver (Cassidy, Giles & McLaughlin, 2014; Hunt et al., 2005). However, no minimum age was selected for the former young caregivers, because prior research indicates that young children may find themselves in the caregiver role (Kavanaugh et al., 2016).

2.0. Method

2.1 Participants

Individuals were recruited through newspaper advertisements, online newsletters, support groups, and Craigslist (see Procedure section for recruitment details). Sixty individuals replied to the advertisements and 50 sent back the questionnaires (83% return rate). Only one participant had a significant amount of missing data. There were 49 former young caregivers included in analyses in this study. As stated above, individuals were considered “youth caregivers” if they provided BADLs and/or IADLs to a parent or adult relative when under 18 years old for at least a one month period. Individuals were considered “emerging adult caregivers” if they provided BADLs and/or IADLs to a parent or adult relative when between 18 and 29 years old for at least a one month period. Twenty-eight individuals were “youth” caregivers, and twenty-one individuals were “emerging adult” caregivers. A Multivariate Analysis of Variance (MANOVA) was performed to examine the
relationship between caregiver group (youth caregivers vs. emerging adult caregivers) and the caregiver characteristics (age, age began care, length of time caregiving). There was an overall effect of group on caregiver characteristics, (Wilk’s Lambda=.376), \( F(9, 30)=5.53, \ p\leq .0001. \) Caregiver characteristics and group comparisons on these characteristics are presented in Table 1.

### Table 1

**Caregiver Characteristics**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Former Young Caregivers</th>
<th>Emerging Adult Caregivers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( M )</td>
<td>SD</td>
</tr>
<tr>
<td>Current Age</td>
<td>32.39</td>
<td>10.40</td>
</tr>
<tr>
<td>Age Began Caregiving</td>
<td>13.70</td>
<td>3.48</td>
</tr>
<tr>
<td>Length of Caregiving</td>
<td>18.19</td>
<td>11.19</td>
</tr>
<tr>
<td>Income Level</td>
<td>26,133</td>
<td>23,819</td>
</tr>
</tbody>
</table>

*Note.* Higher scores mean that more of the construct is present for each variable listed above. Length of caregiving refers to the number of years caregiving for a parent or adult relative. Listwise deletions were used for any missing data. There was missing data for one participant.

As was expected, there were group differences in the age at which individuals began providing care for a parent or adult relative. Youth caregivers provided care significantly longer than emerging adult caregivers. The Phi statistic for gender was significant, -.29, \( p=.04. \) The males (8) and females (13) were more evenly divided in the emerging adult caregiver group compared to the males (4) and females (24) in the youth caregiver group. For the youth caregiver group, there were 14 Caucasian Americans, 10 African Americans, 2 Asian Americans, 1 Latino American, and one who reported a mixed ethnic background. For the emerging adult caregiver group, there were 6 Caucasian Americans, 10 African Americans, 2 Latino Americans, and three individuals who reported a mixed ethnic background. An Analysis of Variance showed no effect of group for income level, \( F(1, 47) = 0.01, \ p=.92. \) Income level for both caregiver groups had an average value in the middle twenty thousand dollar range. The majority of both youth caregivers and emerging adult caregivers provided care for their mothers, followed by fathers, and other relatives. Care recipient conditions could range from cancer to Multiple Sclerosis, but most of the individuals reported providing care for a relative with dementia or cancer.

### 2.2. Measures

**Demographics.** A demographic questionnaire included questions on demographic, caregiver, and care recipient characteristics.

**Personality.** Instrumental and expressive traits were assessed with the short version of the Personal Attributes Questionnaire (PAQ; Spence et al., 1974). This instrument contains 24 items including eight instrumental items, eight expressive items, and eight instrumental–expressive items. Participants respond to each item on a five-point scale (1 = *Not at all like me*; 5 = *Very much like me*).
Very like me), and scores can range from eight to 40 for both the instrumental and expressive scales. The instrumental scale has items that were originally proposed to be socially desirable for both genders, but believed to be more characteristic of men than women (e.g., assertive). The expressive scale has items that were originally proposed to be socially desirable for both genders as well, but believed to be more characteristic of women than men (e.g., sensitive). Only the instrumental and expressive scales were included in analyses for the present study. This was done to provide comparisons to prior research that included analyses only on instrumental and expressive scales (i.e., Shifren et al., 2003).

In the present study, Cronbach’s alpha was .71 for the instrumental items. Cronbach’s alpha was .79 for the expressive items.

Health-Promoting Behaviors. The Health Promoting Lifestyle Profile II (Walker & Hill-Polerecky, 1996) is a questionnaire that includes 52 items that reflect six theoretical dimensions of a health-promoting lifestyle including Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relations, and Stress Management. Each dimension contains eight to nine items, and all items are rated on a self-report scale with ratings from 1 (never) to 4 (routinely). An overall health-promoting lifestyle behavior score is obtained by calculating the mean of the individual responses to all 52 items. Subscale scores are obtained similarly by calculating the mean of the responses to subscale items. Reliability and validity of the questionnaire has been obtained in a number of previous studies (Hulme et al., 2003; Hulsman, 2011; Lee, 2006). In the present study, Cronbach’s alpha for the total scale was .94 for former young caregivers. Cronbach’s alpha for Health Responsibility was .87. Cronbach’s alpha for Physical Activity was .85. Cronbach’s alpha for Nutrition was .74. Cronbach’s alpha for Spiritual Growth was .81. Cronbach’s alpha for Interpersonal Relations was .67. Cronbach’s alpha for Stress Management was .81.

2.3. Procedures

This study received Institutional Review Board approval before data was collected, and all compliance procedures were followed. Recruitment procedures included newspaper advertisements in the Mid-Atlantic area, as well as online support groups for Parkinson’s disease and Multiple Sclerosis, and through weekly postings on Craigslist to cities nationwide. Though the sample is small, participants were recruited from California to New England with the use of Craigslist. From the advertisements, individuals were directed to contact the Principal Investigator (PI) by email or phone to notify the PI of their interest in the study. Once the PI was contacted, the PI screened potential participants for their eligibility with questions on potential participants’ caregiver experiences including: (1) when they began the caregiver experience, (2) who they provided care for, (3) how long they provided care, (4) the types of care provided, and (5) a general description of the reason they needed to provide care.

Qualified individuals completed the study packet that was mailed to their home and returned this packet in the self-addressed stamped envelope provided. All participants read and signed a consent form before completing the packet of questionnaires. Individuals completed a demographic questionnaire, questions on their caregiver experiences (same as the questions in the initial screening from PI), the PAQ, and the HPLPII. These questionnaires were included in a packet that contained other measures that are part of a larger study on these caregivers. The study took 20 minutes to complete, and individu-
als were asked to return the completed materials in a self-addressed stamped envelope that was provided to them. To ensure confidentiality, all consent forms were returned to the PI in a separate envelope from their data. All completed questionnaires returned to the PI had no name, address, or other personal identifiers. All individuals in this study were paid $20.00 for their participation in this research.

3.0. Results

SPSS version 23.0 was used to perform all of the data analyses for this study. Before analyzing the data for a relation between personality and health-promoting behaviors, a MANOVA was performed to examine the relationship between caregiver group (youth caregiver vs. emerging adult caregiver) and the study variables (Instrumental and Expressive Traits, HPLPII total score and the 6 subscales). There was no overall effect of caregiver group on the study variables, (Wilk’s Lambda=.802), $F(8, 35) = 1.08$, $p=.39$. Therefore, data for both groups were combined for all analyses ($n=49$). The descriptive information for the study variables is presented in Table 2.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Former Young Caregivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAQ</td>
<td>N=49</td>
</tr>
<tr>
<td>Instrumental Traits</td>
<td>29.83(5.20)</td>
</tr>
<tr>
<td>Expressive Traits</td>
<td>32.73(5.26)</td>
</tr>
<tr>
<td>HPLPII</td>
<td></td>
</tr>
<tr>
<td>Health Responsibility</td>
<td>2.43(0.72)</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>2.38(0.74)</td>
</tr>
<tr>
<td>Nutrition</td>
<td>2.52(0.57)</td>
</tr>
<tr>
<td>Spiritual Growth</td>
<td>3.05(0.54)</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>2.99(0.46)</td>
</tr>
<tr>
<td>Stress Management</td>
<td>2.47(0.62)</td>
</tr>
<tr>
<td>Total Score</td>
<td>2.64(0.47)</td>
</tr>
</tbody>
</table>

*Note.* Higher scores mean that more of the constructs are present.

Before assessing the relation between personality and health-promoting behaviors, the possible relation between demographic characteristics and the study variables was assessed. A MANOVA was performed to examine the relationship between gender and the study variables. There was no overall effect of gender on the study variables, (Wilk’s Lambda=.939), $F(8, 35) = 0.29$, $p=.97$. A MANOVA was performed to examine the relationship between ethnicity and the study variables. There was an overall effect of ethnicity on the study variables, $F(8, 35)= 2.79$, $p=.02$. However,
groups were too small for any meaningful interpretation of differences (e.g., three individuals were Latino American, and two individuals were Asian American).

Pearson correlations of the relation of age, age began care, length of time caregiving, and income to the study variables are presented in Table 3.

Table 3
Relation of Caregivers’ Characteristics to their Personality and Health Promoting Behaviors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Current Age</th>
<th>Age Began Caregiving</th>
<th>Length of Time Caregiving</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Traits</td>
<td>.54***</td>
<td>-.05</td>
<td>.51***</td>
<td>.13</td>
</tr>
<tr>
<td>Expressive Traits</td>
<td>.07</td>
<td>-.48***</td>
<td>.25</td>
<td>-.05</td>
</tr>
<tr>
<td>HPLPII</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Responsibility</td>
<td>.52***</td>
<td>-.24</td>
<td>.59***</td>
<td>.03</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>.37**</td>
<td>-.40**</td>
<td>.52***</td>
<td>.23</td>
</tr>
<tr>
<td>Nutrition</td>
<td>.22</td>
<td>-.29</td>
<td>.39**</td>
<td>.10</td>
</tr>
<tr>
<td>Spiritual Growth</td>
<td>.43**</td>
<td>-.16</td>
<td>.46***</td>
<td>.15</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>.17</td>
<td>-.19</td>
<td>.27</td>
<td>.11</td>
</tr>
<tr>
<td>Stress Management</td>
<td>.56***</td>
<td>-.09</td>
<td>.54***</td>
<td>.11</td>
</tr>
<tr>
<td>Total Score</td>
<td>.53***</td>
<td>-.30*</td>
<td>.63***</td>
<td>.17</td>
</tr>
</tbody>
</table>

Note. Both caregiver samples are combined for this table. N=49. HPLPII=Health Promoting Lifestyle Profile II. *p ≤.05, **p ≤.01, ***p ≤.001.

Because there were numerous correlations (correlations between 13 variables), the Bonferroni procedure was used to set the significance level at .004 for these analyses (.05/13; Kirk, 1982). Based on this significance level, age was positively related to instrumental traits, the HPLPII total mean, health responsibility, spiritual growth, and stress management. Age individuals began care was positively related to expressive traits. Length of time caregiving was positively related to instrumental traits, HPLPII total mean, health responsibility, physical activity, spiritual growth, and stress management.

To address the question of interest, “Is there a relation between caregivers’ personality characteristics and their health-promoting behaviors?”, Pearson correlations were calculated. Pearson correlations of the relation of instrumental and expressive traits to HPLPII and subscales are presented in Table 4.
Table 4
Relation of Caregivers’ Personality to their Health Promoting Behaviors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Instrumental Traits</th>
<th>Expressive Traits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Responsibility</td>
<td>.39**</td>
<td>.27</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>.44**</td>
<td>.24</td>
</tr>
<tr>
<td>Nutrition</td>
<td>.07</td>
<td>.27</td>
</tr>
<tr>
<td>Spiritual Growth</td>
<td>.62***</td>
<td>.37**</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>.51***</td>
<td>.52***</td>
</tr>
<tr>
<td>Stress Management</td>
<td>.57***</td>
<td>.27</td>
</tr>
<tr>
<td>Total HPLPII Score</td>
<td>.56***</td>
<td>.41**</td>
</tr>
</tbody>
</table>

Note. Both caregiver samples are combined for this table. N=49. HPLPII=Health Promoting Lifestyle Profile II. *p ≤ .05, **p ≤ .01, ***p ≤ .001.

Caregivers’ higher scores on instrumental traits were related to greater health responsibility, more physical activity, more spiritual growth, more interpersonal relations, better stress management, and the total HPLPII score. Caregivers’ higher scores on expressive traits were related to more spiritual growth, more interpersonal relations, and the total HPLPII score.

To further examine the relation between personality and health-promoting behaviors, hierarchical regression analyses were conducted. Caregiver characteristics that were related to the study variables were included in regressions. First, the predictor variables were checked for multicollinearity, and Age began Caregiving showed multicollinearity with Current Age and Length of Caregiving. Age began Caregiving was not included in the analyses. The hierarchical regression included two steps. Current Age and Length of Caregiving were included in step one, and Instrumental and Expressive Traits were included in step two. These steps were performed for all six HPLPII subscales. As can be seen in Table 5 (hierarchical regression), the model significantly improved with the inclusion of instrumental traits for four of the six models, explaining an additional 9 to 19% of the variance, depending on the model.
### Table 5

Hierarchical Regression Analyses for the Relationship between Caregivers’ Personality and Health-Promoting Behaviors

<table>
<thead>
<tr>
<th>Step Variables</th>
<th>β</th>
<th>R²</th>
<th>R² Change</th>
<th>F(df)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL HPLPII SCORE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Current Age</td>
<td>.13</td>
<td>.42</td>
<td></td>
<td>13.87(2,38)</td>
<td>.0001</td>
</tr>
<tr>
<td>2. Instrumental Traits</td>
<td>.33*</td>
<td>.52</td>
<td>.10</td>
<td>4.01(2,36)</td>
<td>.040</td>
</tr>
<tr>
<td>3. Expressive Traits</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HEALTH RESPONSIBILITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Current Age</td>
<td>.10</td>
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*Note. β=Standardized Beta Coefficient. HPLPII=Health Promoting Lifestyle Profile II.*

*p≤.05, **p≤.01.

The Interpersonal Relations model improved with the inclusion of both instrumental and expressive traits, explaining an additional 32% of the variance in the model. Instrumental and expressive traits did not explain additional
Finally, to determine if the sample of former young caregivers had a level of health-promoting behaviors similar to other caregiver samples, current results were compared to an urban caregiver sample of women providing care for their spouses (Lee, 2009). The current HPLPII total score and the subscales were compared to the same variables from Lee’s (2009) study. For Lee (2009) means and standard deviations for variables included: Health responsibility (Mean=2.62, SD=0.59), Physical Activity (Mean=1.87, SD=0.68), Nutrition (Mean=2.89, SD=0.56), Spiritual Growth (Mean=3.00, SD=0.57), Interpersonal Relations (Mean=3.08, SD=0.50), Stress Management (Mean=2.66, SD=0.65), and Total Score (Mean=2.69, SD=0.47), respectively. Calculation of the standard error of the difference compensates for unequal sample sizes (Welkowitz, Ewen & Cohen, 1982) when comparing the means from the present study to the means from Lee (2009). The t-value for a two-tailed test at 0.05 level of significance for a df = 86 is 1.99. The results showed that there was a statistical difference between the samples for Nutrition, $t(86)= -3.11, p<.05$ and Physical Activity, $t(86)= 3.36, p<.05$. For nutrition, it appears that the former young caregiver sample reported significantly less nutrition than Lee’s (2009) sample of urban women caregiving for their spouses. For physical activity, former young caregivers reported significantly more physical activity than Lee’s sample of women caregivers. No other differences were found between the two samples.

4.0. Discussion

Providing care for a parent or adult relative while one is a child, adolescent, or emerging adult may have profound effects on an individual’s perception of and decisions about his/her own health and health-related behaviors over time. While some individuals may feel that there is nothing they can do to affect their health, others may believe that pursuing health-promoting behaviors may reduce their risk of becoming ill (Shifren, 2009).

The health-promoting behaviors of former young caregivers once they reach adulthood has received limited attention by researchers, and the relation between their personality characteristics and health-promoting behaviors has not previously been studied. The purpose of the present study was to begin filling in this gap in the literature.

Prior research on health-related behaviors in non-caregiver samples has indicated support for the androgyny model for the relation between instrumental and expressive traits using the PAQ and health-related behaviors (Shifren et al., 2003; Shifren & Bauserman, 1996). In the present study, instrumental traits were related to more health-promoting behaviors, and showed more significant results than expressive traits. There was support for the androgyny model with the amount of variance explained in one HPLPII subscale (32%), interpersonal relations. However, only instrumental traits explained variance for the total HPLPII score, physical activity, spiritual growth, and stress management models (variance ranged from nine to 19%). These results suggest that instrumental traits are important in terms of the performance of health-promoting behaviors in former young caregivers, providing support for the masculinity model (Whitley, 1985). The presence of instrumental traits being linked to better health-promoting behaviors is consistent with recent findings on a non-caregiver sample of adult women who showed a link between more instrumental traits and better waist
reduction in their research involving the GOAL Lifestyle Implementation Trial (Hankonen, Konttinen & Absetz, 2014).

In addition, in the present study there was a comparison of the former young caregiver sample to an adult caregiver sample (Lee, 2009) that included the same measure of health-promoting behaviors. Lee’s (2009) sample included older adult women spouse caregivers whose average age was 71, and the present study sample included former young caregivers (males and females) who were, on average, 33 years old. Despite the differences in our samples, the results show similarity on all but two subscales for the HPLPII, including physical activity and nutrition. Analyses revealed that former young caregivers have poorer nutrition but better physical activity compared to older adult women caregivers. Research on health-related behaviors, using the HPLPII in non-caregiver groups of young, middle and older adults, has shown non-caregiver older adults reported better nutrition than non-caregiver samples of younger and middle adults, while younger and older adults were not significantly different in their ratings of physical activity (Becker & Arnold, 2004).

4.1. Limitations and Directions for Future Research

Ensuring proper screening for qualified caregivers for the sample in the present study did result in a smaller sample size than is ideal for elaborate model testing. To increase generalizability, future research should include larger samples of former young caregivers and include non-caregiver groups as well. Ideally, a longitudinal study investigating the role of caregivers’ instrumental and expressive traits in their decision to perform health-promoting behaviors would provide the data to disentangle, to some degree, the temporal relationship between traits and health-promoting behaviors.

Some researchers argue that health behavior change increases through young and middle adulthood, followed by a decline into old age (Zanjani, Schaie & Willis, 2006), while others report older adults have higher ratings on most health-promoting behavior scales (Becker & Arnold, 2004). The symptoms of many diseases such as heart disease do not occur until later in life; however, health-related behaviors from earlier parts of the lifespan may affect the development of these diseases. Studying health behaviors of former young caregivers while they are in young adulthood and implementing the right intervention program may be a crucial step in delaying or preventing the onset of diseases affected by lifestyle in these individuals.

5.0. Acknowledgements

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6.0. References


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