Nurturing Compassion Development Among College Students: A Longitudinal Study

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Nurturing Compassion Development Among College Students: A Longitudinal Study

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Abstract

Little research exists on the development of compassion among college undergraduates. This study tracks changes in compassion and identifies factors associated with these changes over the course of undergraduate students’ college careers, from the time of admittance to the time of graduation. Compassion levels assessed at the point of college entrance accounted for 25% of the variance in compassion at the time of graduation. These findings provided evidence for the notion that compassion can continue to be cultivated once in college. Predictors such as diversity training, the frequency of religious service attendance, participation in community-based service-learning, political identification, and feeling valued as a member of the university community accounted for an additional 10% of the variance in compassion scores at the time of graduation. Results suggest that compassion development in college students may increase through the use of particular intentional educational experiences.

Current research on compassion has focused primarily on professional caregivers such as the prevention and treatment of compassion fatigue among healthcare workers, including physicians, nurses, social workers, psychologists, and others (e.g., Horsburg & Ross, 2013; Shih et al., 2013). There has been little research on cultivating compassion in educational environments and specifically among undergraduate college students (Lovette-Colyer, 2014; Callister & Plante, 2015). Yet many colleges and universities in the United States have highlighted their interest in character education by affording students holistic educational opportunities that go beyond traditional classroom instruction. Holistic education is defined as an educational philosophy focused on promoting student intellectual, spiritual, moral, and social growth and “preparing (students) for leadership and service to the common good in their professional, civic, and personal lives” (Santa Clara University, n.d.). Higher education institutions that focus on holistic education, especially those that are religiously affiliated, often promote mission statements that include encouraging their students to lead lives dedicated to serving others, becoming advocates for social justice, and being engaged future ethical citizens. Educational

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institutions dedicated to educating today’s youth acknowledge that both academic and character education is important to nurture and develop. These schools believe their commitment to the holistic education of students will foster a brighter future for society by helping to educate compassionate and engaged members of the global community who will become tomorrow’s leaders. As such, compassion is an important character trait that some institutions of higher learning seek to cultivate (e.g., Santa Clara University, n.d.; University of San Diego, n.d.).

In many ways, the years spent in college are an excellent time to foster compassion development among young adults. Past research focusing on the growth and development of beliefs, attitudes, and values has shown that experiences during the undergraduate years have a significant and lasting impact on a person’s worldview (e.g., Feldman & Newcomb, 1969; Pascarella & Terenzini, 1991, 2005).

Previous research regarding the cultivation of compassion in undergraduate students has uncovered particular factors associated with higher or lower amounts of compassion and has established that many students do increase in compassion during their undergraduate years (Lovette-Colyer, 2014; Callister & Plante, 2015). A proportion of students, however, seem to remain unchanged in assessed compassion while some even decrease in compassion during college (Lovette-Colyer, 2014). In a two-year longitudinal study at University of San Diego, Lovette-Colyer (2014) found that while half of the undergraduate students displayed increased compassion, 15% of students remained the same, and slightly over a third of the students decreased in compassion over the course of two years on campus. Lovette-Colyer (2014) also found that participation in community service was one characteristic of those who increased in compassion but that community service-learning (i.e., community service incorporated into academic classes) was associated with a decrease in compassion. However, in several cross-sectional studies students at Santa Clara University, researchers found that participation in community-based service-learning, even community service that was required as part of an academic class, was positively associated with increased compassion scores (Callister & Plante, 2015; Mills, Bersamina, & Plante, 2007; Plante, Lackey, & Hwang, 2009).

In the Callister & Plante study (2015), these researchers found a variety of predictors of compassion assessed among graduating seniors in a cross-sectional study. These included attending racial/cultural awareness workshops suggesting that diversity training and/or exposure to other cultures and perspectives may play an important role in cultivating compassion among students. Additionally, females and those who self-identified as liberal on the political spectrum also tended to have higher compassion scores as well. Those students who attended religious services, those who identified as being religious or spiritual, and those preparing to go into service-oriented fields such as healthcare also displayed higher compassion scores. These authors found a number of factors that predicted lower compassion scores among seniors including students who placed higher value on financially rewarding careers and reported that personal financial success was very important to them. Also, an inverse relationship between compassion and “partying behavior” was determined as well. Overall, the amount of compassion expressed tended to decrease as frequency of drinking and the reported number of hours spent partying increased. These findings were supported by Lovette-Colyer (2014), who found that participation in Greek life was associated with decreases in compassion over the two-year assessment period.

**Purpose and Hypothesis of the Present Study**

To our knowledge, the current study is the first to examine changes in compassion over the course of four college years, from when undergraduate students entered as first-year students to when they graduated as
The current research can provide a contribution to the small but important field of psychological and educational research focusing on cultivating compassion among today’s young adults and tomorrow’s future leaders.

The purpose of this study was to examine changes in compassion over the course of students’ undergraduate career at a university that espouses the ideals of holistic and character-based higher education. As stated on the university website, the mission of Santa Clara University is to “educate citizens and leaders of competence, conscience, and compassion and cultivate knowledge and faith to build a more humane, just, and sustainable world” (Santa Clara University, n.d.). Specifically, this study sought to examine whether certain elements of a type of holistic education, such as community service-learning integrated as part of academic classes, accounts for any changes in compassion among the university’s undergraduate students. We predicted that female gender, “left-leaning” political beliefs, participation in community-based service-learning, attendance of religious services, and participation in diversity training would be associated with increases in compassion while participation in Greek life and “partying behavior” would be associated with decreases in compassion.

Methods

Participants

As part of the within-subjects design, participants were selected based upon their successful completion of both the survey given to first-year students and the survey given to graduating seniors. This resulted in a sample of 491 students (n = 491) at Santa Clara University who graduated during the years of 2011–2013. Most of these students had attended the university for four years, having entered the university as first-year students between the years of 2007 and 2009.

Females (n = 312) made up 63.5% of the sample while males (n = 177) accounted for 36.0% [missing, n = 2]. Participants identifying as White comprised the largest racial/ethnic group (64.0%) followed by Asians (22.0%), Mexican/Chicano (14.3%), Other Latino (6.7%), Black (4.3%), other race/ethnicity (3.3%), Native American (1.6%), Native Hawaiian/Pacific Islander (1.2%), and Puerto Rican (0.4%). Race/ethnicity data were missing for one participant. It is important to note that the sum of percentages exceeded 100% because participants were allowed to identify with multiple racial/ethnic groups on the surveys.

Nearly one-third (29.1%) of the participants were students in the School of Business, while 16.5% were students in the School of Engineering. Nearly one-fifth (19.8%) of the participants were majoring in one or more of the social sciences within the College of Arts and Sciences, while 16.1% of the participants were obtaining degrees in mathematics and/or the natural sciences. Those studying the humanities comprised 15.1% of the sample, while only 3.5% of the participants were majoring in the arts.

Materials

The data were compiled by pairing responses from the university’s annual CIRP Freshman Survey and the university’s College Senior Survey in order to be able to make within-subjects comparisons from Time 1 (as incoming freshman undergraduate students) to Time 2 (as graduating college seniors) as a method of
measuring changes in compassion while the students attended the university. The freshman survey was sent out after the incoming first-year students had confirmed their enrollment in the university and completed during the summer prior to the start of the fall quarter classes. The senior survey was administered during the spring quarter before graduation.

Compassion was operationalized and measured using the Santa Clara Brief Compassion Scale (Hwang, Plante, & Lackey, 2008). In addition to the Santa Clara Brief Compassion Scale, the freshman survey included questions regarding demographic and background data (i.e., gender, race/ethnicity, high school GPA, SAT/ACT scores, racial/ethnic composition of one’s neighborhood/social circle, etc.), the activities they participated in during high school, reasons for attending college, the type of high school they attended (i.e., private independent school, private Catholic school, public school, etc.), and their intentions regarding their activities while at the university (i.e., intended major, intention to join a fraternity/sorority, etc.), as well as their values, beliefs, and attitudes.

Like the freshman survey, the senior survey was comprised of the Santa Clara Brief Compassion Scale and questions focused on the participants’ demographic data (i.e., gender, race/ethnicity, academic major, college GPA, etc.), behaviors in college (i.e., activities, involvement, etc.), personal values, attitudes, and future personal and professional goals.

**Procedure**

The survey data were accessed and analyzed with the permission of the university’s Institutional Review Board and the university’s Institutional Research Department. All student information, including the participants’ names and student ID numbers, were removed prior to analysis to protect the privacy of the participants and replaced with study participant ID numbers. The data were then analyzed through descriptive statistics, correlational analysis, multiple regression analyses, and Analysis of Covariance (ANCOVA) procedures.

After step-wise regression analysis isolated the variables that accounted for some of the variance between the participants’ freshman compassion scores and their senior compassion scores (i.e., changes in compassion over the period between the surveys while they attended the university), forward regression analysis was used to eliminate any confounding between the independent variables and determine the best-fit regression equation model.

During the analysis of the data, the emphasis was placed on behavior and/or action-oriented variables (i.e., frequency of attendance of religious services, membership in a sorority or fraternity, etc.) rather than beliefs or attitudes because of demand characteristics associated with self-report data. Most of the variables examined were taken from the senior survey because of the priority given to studying what parts of the values-based education offered at Santa Clara University influence changes and development in compassion and the assumption that the relationship between the participants’ environment and experiences and their compassion scores would be accounted for in their compassion scale score from the freshman survey.

The two exceptions to the focus on behavior and action-oriented variables were the participants’ political identification as they entered and as they left the university (i.e., how they identified themselves on the political spectrum) and their perceptions regarding whether they as individuals were valued by the university community.
Results

Descriptive Statistics

As Table 1 demonstrates, there was a decrease from Time 1 to Time 2 in the percentage of participants who reported attending religious services frequently in the previous year, while there was an increase in the number of participants who reported either not attending religious services at all in the past year or attending them occasionally.

Participants demonstrated a tendency to shift left politically over the course of their time as undergraduate students, as shown in Table 2. Although there was a slight increase in the number of students who politically identified as far right, the percentage of students identifying as conservative or moderate decreased while the percentage of students identifying as liberal or left leaning increased.

Most of the participants reported performing community service as part of one of their classes while enrolled at the university. Nearly one-fourth of the participants (23.2%) reported that their classes frequently included engagement in community-based service-learning, while nearly two-thirds (63.1%) of the participants reported occasional community-based service involvement as part of a class. Only 13.6% of the students reported that they had not been involved in community-based service as part of one of their classes while attending the university. Nearly half of the participants (46.4%) attended at least one workshop focused on racial/cultural awareness while an undergraduate student at the university. The vast

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Reported Attendance of Religious Services During the Previous Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1 (Freshman Survey)* n</td>
</tr>
<tr>
<td>Not at all</td>
<td>74 (15.1%)</td>
</tr>
<tr>
<td>Occasionally</td>
<td>185 (37.7%)</td>
</tr>
<tr>
<td>Frequently</td>
<td>228 (46.4%)</td>
</tr>
</tbody>
</table>
*Missing: n = 4 (0.8%)
** p < 0.001

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Reported Political Identity as Incoming Freshmen and Graduating Seniors***</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1 (Freshman Survey)* n</td>
</tr>
<tr>
<td>Far-right</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Conservative</td>
<td>90 (18.3%)</td>
</tr>
<tr>
<td>“Middle-of-the-road”</td>
<td>198 (40.3%)</td>
</tr>
<tr>
<td>Liberal</td>
<td>177 (36.0%)</td>
</tr>
<tr>
<td>Far-left</td>
<td>6 (1.2%)</td>
</tr>
</tbody>
</table>
*Missing: n = 20 (4.1%)
**Missing: n = 2 (0.4%)
*** p < 0.05
majority of the participants reported feeling like they were a valued part of the university community, with 45.0% of the participants agreeing and 45.4% of participants strongly agreeing with the statement: “I feel valued at this institution.” Only 1.2% of participants had strong feelings of not being valued at the university.

**Inferential Statistics**

Correlational analysis found that there was a strong, statistically significant correlation ($r = 0.50$, $p < 0.01$) between participants’ senior compassion scale scores and their freshman compassion scale scores. As displayed in Table 3, both senior and freshman compassion scale scores were modestly but significantly correlated with diversity workshop attendance, connection to the university community, religious service attendance, political views at the end of senior year, and academic-related community service participation. There were modest correlations between all of the behavior/action-oriented variables at either the $p < 0.05$ or $p < 0.01$ level of significance, with the exception of senior political views and academic-related community service participation. There was no correlation between senior political views and participation in community service as part of a class.

Multiple regression analysis, as demonstrated in Table 4, established a multiple regression model ($R^2 = 0.345$, $F[6, 482] = 42.25$, $p < 0.001$) of six predictors of students’ scores on the senior compassion scale that included freshman compassion scale score, attendance at a diversity workshop, senior year political views, frequency of religious service attendance, feeling of being valued and connected to the

| Summary of Correlations Between Compassion Scores and Relevant Variables |
|-----------------|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | | | | | |
| 2 | 0.50** | | | | |
| 3 | 0.20** | 0.13** | | | |
| 4 | 0.25** | 0.22** | 0.17** | | |
| 5 | 0.24** | 0.16** | 0.10* | 0.11* | |
| 6 | 0.23** | 0.19** | 0.13** | 0.11** | 0.21** |
| 7 | 0.19** | 0.08* | −0.09* | −0.15** | 0.11** | 0.040 |

* $p < 0.05$
** $p < 0.01$

1 = Senior Compassion Score
2 = Freshman Compassion Score
3 = Feeling Values by the University
4 = Religious Service Attendance
5 = Racial/Cultural Awareness Attendance
6 = Community Service Participation
7 = Senior Political Leanings
university community, and participation in community service as part of an academic class. The regression analysis found that gender, freshman political views, freshman frequency of religious service attendance, reported hours per week spent in prayer/meditation, college GPA, reported hours spent studying/doing homework, and employment at a full-time job during an academic term did not explain any further amount of variance in senior compassion scale scores.

Similarly, many social or extracurricular behavioral variables were also eliminated as predictors. Frequency of alcohol consumption, fraternity/sorority membership, participation in an ethnic/racial student organization, reported hours per week spent partying, and history of having had a roommate of another race/ethnicity all failed to account for any additional, significant amount of variance in compassion scores.

As shown in Table 5, results from an analysis of covariance (ANCOVA) indicated that certain fields of study are associated with higher compassion scores at the end of the participant’s college career, even after taking freshman compassion scores into account. Analysis found that there was a significant effect of

Table 4

Multiple Regression Model Summary

<table>
<thead>
<tr>
<th>Mode Change</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>Std. Error of the Estimate</th>
<th>R² Change</th>
<th>F Change</th>
<th>df₁</th>
<th>df₂</th>
<th>Sig. F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.50²</td>
<td>0.252</td>
<td>0.251</td>
<td>0.85950</td>
<td>0.025</td>
<td>164.230</td>
<td>1</td>
<td>487</td>
<td>0.0002</td>
</tr>
<tr>
<td>2</td>
<td>0.53³</td>
<td>0.281</td>
<td>0.278</td>
<td>0.84392</td>
<td>0.028</td>
<td>19.145</td>
<td>1</td>
<td>486</td>
<td>0.000</td>
</tr>
<tr>
<td>3</td>
<td>0.54⁴</td>
<td>0.298</td>
<td>0.294</td>
<td>0.83455</td>
<td>0.017</td>
<td>11.973</td>
<td>1</td>
<td>485</td>
<td>0.001</td>
</tr>
<tr>
<td>4</td>
<td>0.56⁵</td>
<td>0.322</td>
<td>0.317</td>
<td>0.82063</td>
<td>0.025</td>
<td>17.602</td>
<td>1</td>
<td>484</td>
<td>0.000</td>
</tr>
<tr>
<td>5</td>
<td>0.58⁶</td>
<td>0.337</td>
<td>0.330</td>
<td>0.81289</td>
<td>0.014</td>
<td>10.257</td>
<td>1</td>
<td>483</td>
<td>0.001</td>
</tr>
<tr>
<td>6</td>
<td>0.58⁶</td>
<td>0.345</td>
<td>0.337</td>
<td>0.80876</td>
<td>0.008</td>
<td>5.949</td>
<td>1</td>
<td>482</td>
<td>0.015</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Freshman Compassion Scale Score  
b. Predictors: (Constant), Freshman Compassion Scale Score, Diversity Workshop Attendance  
c. Predictors: (Constant), Freshman Compassion Scale Score, Diversity Workshop Attendance, Senior Political Views  
d. Predictors: (Constant), Freshman Compassion Scale Score, Diversity Workshop Attendance, Senior Political Views, Religious Service Attendance  
e. Predictors (Constant), Freshman Compassion Scale Score, Diversity Workshop Attendance, Senior Political Views, Religious Service Attendance, Connection to University Community

Table 5

ANOVA Summary Mean Compassion Scores by Academic Major

<table>
<thead>
<tr>
<th>Academic Major</th>
<th>n</th>
<th>Mean</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>17</td>
<td>3.28</td>
<td>0.21</td>
</tr>
<tr>
<td>Business</td>
<td>143</td>
<td>3.34</td>
<td>0.07</td>
</tr>
<tr>
<td>Engineering</td>
<td>81</td>
<td>3.09</td>
<td>0.09</td>
</tr>
<tr>
<td>Humanities</td>
<td>74</td>
<td>3.25</td>
<td>0.10</td>
</tr>
<tr>
<td>Natural Science/Math</td>
<td>79</td>
<td>3.42</td>
<td>0.10</td>
</tr>
<tr>
<td>Social Science</td>
<td>97</td>
<td>3.69</td>
<td>0.09</td>
</tr>
</tbody>
</table>

degree field on senior compassion scores after controlling for freshman compassion scores, $F(5) = 4.92$, $p < 0.001$. Participants studying within the social sciences displayed the highest compassion scores (Mean = 3.69), followed by those in math and the natural sciences (Mean = 3.43). Students in the School of Engineering displayed the lowest compassion scores (Mean = 3.10).

**Discussion**

Freshman compassion scores were the strongest predictor of senior compassion scores, accounting for 25% of the variance in senior compassion scores. While this predictor highlights the assertion that compassion development before college is important, this finding validates the idea that the undergraduate years are a window of potential influence in compassion cultivation because three-fourths of the variance in compassion at the time of graduation was not attributed to the amount of compassion already present at the start of the first year of college.

An overwhelming majority of the sample reported feeling valued at the university, though some felt it more strongly than others. Feeling like a valued part of the university community was positively correlated with senior compassion and also accounted for a small but statistically significant amount of the variance in the multiple regression equation. Due to the study design, we were unable to establish directionality or rule out confounding variables, but two potential explanations of this finding might posit that students who are becoming more compassionate may feel increasingly valued at a university that strongly emphasizes being compassionate or that feeling like one is a valued part of the university community may incline students to align themselves to other interests or qualities valued by the university.

Slightly less than half of the sample had attended a racial/cultural awareness workshop while attending the university. Diversity training accounted for the second largest amount of variance in the regression model, after freshman compassion scores, suggesting the importance of this experience to any university seeking to cultivate compassion among its students. Because diversity workshops are typically held as optional campus events, attendance of diversity training may be impacted by a self-selecting exposure to alternate perspectives and ideas, thus potentially increasing compassion among those who may be predisposed to be more compassionate already.

The large percentage of the sample that performed community service as part of one of their classes can be explained by Santa Clara’s implementation of a modified core curriculum for freshman entering in fall 2009 and all subsequent cohort years. The updated core curriculum added participation in at least one class with a community service-learning component as a graduation requirement. Additionally, the differences between students in the frequency of performing community service as part of a class might be explained by the curriculum differences between academic areas. Some fields of study, such as urban education, sociology, and psychology, might offer or require more classes with community service components than other fields of study such as philosophy, chemistry, or engineering. If so, this might suggest an overlap between community service-learning and area of study that could be examined in future research.

Our finding that attendance of religious services decreases overall in college is consistent with past research that has found that the percentage of students who frequently attend religious services tends to decrease, and the percentages of students who attend occasionally and those who do not attend at all increase (Astin, Astin, & Lindholm, 2011). Our findings also support the results of previous research stating that undergraduate students tend to experience a slight shift to the left politically over the course of college (Mariani & Hewitt, 2008). At the time of graduation, left-leaning political views and frequent attendance of
religious services during the previous year were positively correlated with high compassion at the time of the senior survey. The amount of variance in senior compassion that was accounted for by the combination of senior political views, attendance of religious services, and participation in community service-learning supports the notion, suggested by previous research, that engaging with activities that encourage care for the marginalized, disadvantaged, and oppressed may likely nurture compassion development (Bernacki & Jaeger, 2008; Gorman, Duffy, & Heffernan, 1994; Jones & Abes, 2004; Jones & Hill, 2001).

Similarly, as an academic area primarily devoted to understanding aspects of human behavior, it is not particularly surprising that students within the social sciences had the highest compassion scores—even after controlling for freshman compassion scores—suggesting that some aspect of these students’ fields of study might have an impact on compassion during college. Those in mathematics and the natural sciences displayed the second highest senior compassion scores after controlling for freshman compassion scores. One possible explanation for this result is that studying within either the social or natural sciences might facilitate compassion development through a possible shared emphasis of using the scientific method to find ways of helping people. It is possible that studying within the natural sciences cultivates a similar interest in discovering solutions to the various issues affecting people as studying within the social sciences. This idea could also suggest that the low compassion found among engineering and business students is a result of coursework that may tend to be less “people-oriented” and more personally “goal-oriented.” However, it should be noted that this potential explanation could fail to account for why students in the humanities were found to be slightly lower in compassion than the business students after controlling for compassion at the time of entry to the university. The researchers have little explanation for why the students in humanities, who study subjects such as history and modern languages, would have relatively low compassion scores compared to students in other degree fields. It should also be noted that the analysis of academic disciplines was completed separately through analysis of covariance procedures rather than included in the multiple regression model.

Contrary to previous research that identified participating in “Greek life” and “partying behavior” as predictive of lower compassion and decreases in compassion (Lovette-Colyer, 2014; Callister & Plante, 2015), this study found that these behaviors did not account for any significant amount of the variance in compassion change. Interestingly, Callister & Plante (2015) drew from the same senior survey data as this study but found an inverse correlation between compassion and these behaviors. This finding suggests the possibility that undergraduate students who end up participating in “Greek life” and “partying behavior” might enter with lower compassion and graduate with similarly low compassion, thus explaining the lack of change.

While gender accounted for a statistically significant amount of variance in senior compassion after controlling only for freshman compassion, gender accounted for no additional amount of variance in compassion after all of the variables were accounted for in the regression model. This finding suggests the possibility that other variables may act as moderators between gender and compassion.

Our study had several limitations. First, all participants were self-selected in that some agreed to complete all measures while others chose not to do so. Thus, our data included a fairly high rate of attrition in that a large number of participants who completed the incoming freshman survey chose not to complete the senior exiting survey. Secondly, we were reliant on data that were self-reported and may have been impacted by demand characteristics and social desirability bias. Additionally, scores on the compassion scale were also susceptible to potential desirability bias and possible floor and ceiling effects due to the face validity of the compassion measure. As a large and descriptive study surveying college students, the variables measured had high face validity and thus susceptible to potential bias. Lastly, the external validity
of our findings is limited because our study was restricted to participants at one university assessed with only three graduating classes. Despite these limitations, this study offers an important foundation for future research to build upon.

Future research on the topic of cultivating compassion in undergraduates is important and should continue. Researchers may wish to replicate this project by using participants at diverse undergraduate settings, for example. They may also wish to further examine the impact of degree field (i.e., social sciences, humanities, business, etc.) by incorporating it into a multiple regression analysis with the other variables. Additionally, future research is needed to better clarify which findings are reliable and which may be spurious. There is clearly an important need for research based on more than self-report data with high demand characteristics as well as a more detailed analysis of the relationships between compassion and the variables highlighted in this study. In the future, research on this topic should also seek to examine the long-term impact of an undergraduate holistic education in order to understand the sustainability of compassion cultivated during undergraduate education.

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