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Perfectionism in occupational science students: occupational therapy implications

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Abstract

Purpose – The purpose of this study is to categorize perfectionism and determine how perfectionism impacts the occupations and perceived health of students in a Bachelor of Science in Occupational Science program.

Design/methodology/approach – A descriptive study with a survey component was conducted. Participants were categorized as perfectionists or non-perfectionists using the Almost Perfect Scale-Revised (APS-R). Time logs were collected to compare categories of time-use between groups over a one-week period. An online survey was conducted with a sub-sample of the perfectionists.

Findings – More students were categorized as perfectionists ($N = 41$) than non-perfectionists ($N = 3$). Both groups spent similar amounts of time engaged in productive, pleasurable and restorative occupations. Some perfectionists reported that perfectionism supported health, but others reported negative impacts on well-being.

Research limitations/implications – This study included a small sample size limited to one Occupational Science program in the USA.

Originality/value – Results demonstrated positive and negative health impacts because of perfectionism. The majority of participants were identified as perfectionists; rigorous academic programs may attract students with perfectionistic qualities. Findings are relevant for Occupational Therapy, as these students will become future occupational therapists after completing a Master's program in Occupational Therapy and may be susceptible to negative outcomes associated with perfectionism such as workaholism and poor health.

Keywords Occupational therapy, Occupational science, Health implications, Perfectionism, Occupational science, Perfectionism

Paper type Research paper

Introduction

In autumn of 2015, approximately 20 million students in the USA were expected to begin postsecondary education, and three million students were predicted to begin postgraduate education programs; this number is projected to increase by 21 per cent by the year 2025

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(National Institute for Educational Statistics, 2015). Perfectionism is common among college students, with some previous research including college samples with more than half of participants being classified as perfectionists (Canter, 2003; Grzegorek *et al.*, 2004). Although perfectionism is defined in several ways, it is typically understood that perfectionism is “a personality style characterized by striving for flawlessness and setting excessively high standards for performance accompanied by tendencies for overly critical evaluations of one’s behaviors” (Stoeber and Otto, 2006, p. 2). Perfectionism is commonly classified as adaptive or maladaptive. Adaptive perfectionists have reasonable standards and can feel content with their achievements, despite having a desire to excel. In contrast, maladaptive perfectionists cannot feel satisfaction from their achievements, have unattainable standards and their self-worth is contingent upon their performance (Rice *et al.*, 2014). College students who are perfectionists may exhibit healthy and/or unhealthy behaviors related to their academic performance and other occupational areas of their lives.

Participation in occupation is believed to support health, well-being and social participation in daily life (American Occupational Therapy Association, 2014). Many definitions of occupation are available in the literature from international perspectives. The World Federation of Occupational Therapists (WFOT) (2012) defines occupation as the everyday tasks people complete individually and with others, such as with family members or in communities, that create meaning and provide purpose in our lives. Pierce (2001, p. 139) defines occupation as “a specific individual’s personally constructed, nonrepeatable experience”. Additionally, Pierce divides occupation into three categories to describe how people spend their time: pleasurable, productive and restorative. Pleasurable occupations are focused on the satisfaction an individual gains during enjoyable activities. Conversely, productive occupations are goal driven and are the antithesis of pleasurable occupations. Finally, restorative occupations provide the energy necessary to engage in other daily occupations.

Perfectionism relates to Occupational Science and Occupational Therapy because of its connection to life balance. A balanced lifestyle allows one to meet their basic needs through occupation, and this occupationally balanced state produces the greatest happiness (Matuska, 2010). In Western culture, maintaining a balance between occupations is often challenging because of a high emphasis on productivity. Long work hours coupled with limited time and feeling a lack of control over time-use negatively impacts health and well-being (Zuzanek, 2010). This focus on productivity could result in an over- or under-emphasis on areas of occupation creating occupational imbalance and increasing levels of stress. For perfectionists, achieving balance may be even more difficult because their personalities may guide them to focus more intently on productive occupations and minimizing errors in their work.

Literature review

In psychology literature, perfectionism has been studied in relation to procrastination, stress, alcohol abuse and mental health conditions including depression, obsessive-compulsive disorder, as well as eating disorders (Ashby *et al.*, 2006; Bardone-Cone *et al.*, 2007; Chik *et al.*, 2008). Perfectionists may be at greater risk of developing psychosocial problems including psychological disorders because of their increased levels of stress. Current research has shown that prolonged stress alters the brain by spurring the growth of myelin, disrupting the brain’s communication system (Chetty *et al.*, 2014). This process also increases the growth of oligodendrocytes in the hippocampus, which regulates emotions, increasing the risk for anxiety and mood disorders (Chetty *et al.*, 2014). Perfectionism has also been examined in relation to how perfectionists are perceived by others. Adolescents

who are classified as maladaptive perfectionists have been viewed less favorably by their peers than adaptive perfectionists (Gilman *et al.*, 2011). College students who are maladaptive perfectionists may be viewed similarly as the adolescents in this research.

In addition to increasing the risk of psychosocial problems, chronic stress significantly impacts the body's physiological functioning, especially the heart. Heart disease is the leading cause of death in the USA and continues to be the number one cause of death worldwide (Centers for Disease Control and Prevention, 2016; World Health Organization, 2016). Stress has been found to be a significant risk factor for myocardial infarction as well as making the heart susceptible to other cardiac conditions (Dimsdale, 2008; Huma *et al.*, 2012). Albert *et al.* (2016) studied the effects of perfectionism on blood pressure after exposing college students to mathematic stressors. Students with higher levels of perfectionism were less likely to experience a drop in blood pressure as the test progressed than those with lower levels of perfectionism. The perfectionists maintained elevated blood pressure levels throughout the testing period. The implications for the cardiovascular health of perfectionistic college students over time in other situations that provoke stress, while unknown, could be detrimental.

Perfectionism in the college student population has been found to influence how students adjust to college, relate to others and also determines whether they remain in school (Lapoint and Soysa, 2014). Maladaptive perfectionism had an inverse relationship between dissatisfaction and attachment to the school, as well as adjustment to others around them (Lapoint and Soysa, 2014). Students who were maladaptive perfectionists had higher dissatisfaction and did not feel connected to their school or to their peers. Students who identify as perfectionists are often less satisfied by their grade point averages (GPAs) and report lowered self-esteem (Grzegorek *et al.*, 2004). Research has also shown that perfectionists are vulnerable to academic burnout. Specifically, students who identify as maladaptive perfectionists are more likely to succumb to exhaustion and feelings of incompetence, while adaptive perfectionists are more likely to be engaged in educational pursuits, displaying more energy, enthusiasm and commitment to academic performance (Zhang *et al.*, 2007). Students who are maladaptive perfectionists have also been found to be more likely to drink alcohol in excess to cope with stress, whereas students who are adaptive perfectionists have lower risks of developing alcohol-related problems (Rice and Van Arsdale, 2010).

Occupational Science and Occupational Therapy focus on the impact that health conditions, disabilities, context and the environment have on occupation. Despite this focus on health and well-being, publications in these fields about perfectionism are lacking and the closest link available in this literature relates to workaholism. Workaholism is described as a desire or need to work that can cause an overemphasis on work at the expense of social relationships and personal health (Wojdylo *et al.*, 2014). As a result, this overemphasis on work may create a life imbalance that has detrimental social- and health-related consequences (Matuska, 2010). While in the workplace, workaholics may perform somewhat better than their peers and make more use of coping skills; however, this population has poorer overall health than non-workaholics (Shimazu *et al.*, 2010). Further, workaholism has been linked to stress-related conditions ranging from heart disease to mental illnesses (Aziz *et al.*, 2015). In a study of over 16,400 adults, those who identified as workaholics exhibited more symptoms of attention deficit hyperactivity disorder, obsessive-compulsive disorder, anxiety and depression than non-workaholics (Andreassen *et al.*, 2016). Perfectionism has been found to be a common trait among workaholics as presented in psychology literature (Bovornusvakool *et al.*, 2012). Although work has been found to be a meaningful occupation for this population, workaholics have difficulty enjoying time spent in other occupations

such as leisure (Bovornusvakool *et al.*, 2012). Difficulty enjoying non-productive occupations may impact how perfectionists spend their time daily and how they perceive this time-use. Limited research on the topic from an Occupational Science and Occupational Therapy lens makes it difficult to discern the impact perfectionism can have on occupation, such as whether or not it leads to an occupational imbalance or poor health outcomes.

Occupational Therapy often relies on time-use data as a gauge of health and well-being (Hunt and McKay, 2015). Studies on time-use aid in understanding one's occupations, the effects of injury, disease or disability and quality of life (Farnworth, 2003). Time-use studies in the Occupational Science and Occupational Therapy literature have increased in recent years and the scholarship contributed represent the USA, Canada, Australia and Scandinavia (Hunt and McKay, 2015). The American Time Use study provides a picture of how Americans spend their time based on 170,000 interviews collected over 12 years. On an average weekday, full-time college students were found to spend more time combined in educational and work activities than in leisure and sports (Bureau of Labor Statistics, 2016). The Irish National Time Use Survey conducted in 2005 found similar results for younger adults of age 18-24 years in that this group spent more time engaged in educational and work pursuits than any other age group category both on weekdays and weekends (McGinnity *et al.*, 2005). This increased time commitment to work and education may represent a time imbalance that could impact overall health and well-being. Understanding how Occupational Science students spend their time and experience their time-use could have health implications for these students as future occupational therapists.

Purpose

The aim of this research was to categorize perfectionism and understand how the occupations of Occupational Science students who were identified as perfectionists are impacted by perfectionism. To achieve this purpose, the following research questions were posed:

- RQ1. Do students who are identified as perfectionists spend more time engaged in productive occupations than those who are not identified as perfectionists?
- RQ2. In what ways does perfectionism positively or negatively influences one's occupations and health?
- RQ3. What stereotypes, if any, about perfectionism have the participants experienced?

Background of study setting

This study took place at a regional, public university in the USA that includes a Bachelor's degree in Occupational Science as a pathway to a Master's degree in Occupational Therapy. The Bachelor of Science in Occupational Science at the study setting focuses on learning first about the occupations of self and others, and then progresses to using occupation as a means for promoting health and well-being. After students complete the Master of Occupational Therapy program at the study setting, they are eligible to complete the National Board for Certification in Occupational Therapy examination. Passing this exam is required to become certified as an Occupational Therapist in the USA. Additionally, other steps are typically required to obtain and maintain licensure to practice Occupational Therapy, but these guidelines vary by state.

Methods

A descriptive study using a survey component was conducted with undergraduate Occupational Science students during the autumn of 2015 semester. Survey research permits gathering data from a larger number of participants compared to other methods, such as in-depth interviews. Both quantitative and qualitative data were collected and analyzed in this research. Mixed methods research combines both approaches and provides a greater degree of understanding than can be achieved by using a single approach to answer the research question (Creswell, 2014). This study was approved by a University Institutional Review Board (IRB) at the study setting through an expedited review process. Expedited applications are for research that demonstrates no greater than minimal risk for participants and involves non-invasive data collection or research on group characteristics or behavior (US Department of Health and Human Services, 2016). This research category involves review by a subset of the IRB but does not require a full review by the majority of IRB members.

Recruitment

Potential participants were 55 Occupational Science students at a mid-sized public university in the USA. Students had to be between the ages of 18-65 years and be junior Occupational Science majors enrolled in the unit of study entitled OTS 311: Self as an Occupational Being. OTS 311 is taught by an instructor who was not involved in this research study to avoid influencing participants. This course focuses on analyzing occupation and occupational patterns, helping students recognize how this impacts occupation. To recruit participants, the primary researcher visited each section of OTS 311 courses. The purpose, requirements and risks of the study were explained by the primary researcher, and potential participants were given the opportunity to ask questions. Potential participants were notified that participation was voluntary and that grades or status in the Occupational Science program would not be impacted by completing or not completing the study. Contact information for interested students was collected, and students were given a copy of the informed consent document to review and sign. Two weeks later, the primary researcher returned to each section of OTS 311 to collect informed consent verbally and in writing.

Instrumentation

Levels of perfectionism in students were assessed using the *Almost Perfect Scale, Revised* (APS-R), a questionnaire that measures individual levels of perfectionism using three constructs: standards, order and discrepancy (Rice and Ashby, 2007). Standards refers to high standards of performance, while discrepancy refers to the disconnect between one's standards and determining if those standards were met. Finally, the construct of order relates to one's inclination for organization. Participants were given the APS-R and rated their agreement with each of the 23 questions on a Likert scale from 1 (strongly disagree) to 7 (strongly agree). Each question corresponded to one of the constructs, and all the scores for each construct were tallied. To be classified as a perfectionist, a participant had to score 42 points or higher on the high standards questions. To be further categorized as a maladaptive perfectionist, participants had to score 42 points or higher on the discrepancy questions (Rice and Ashby, 2007). While higher scores for each construct indicate a stronger tendency toward perfectionism, these cutoff scores were determined by Rice and Ashby (2007) to ensure sensitivity and avoid improper categorization of participants using the APS-R.

The APS-R is a valid and reliable measure of perfectionism. Previous research has demonstrated that the APS-R has internal consistency coefficients for its three constructs

that fall between the 0.85 and 0.92 range and that test-retest reliability is between 0.76 and 0.82 (Rice and Aldea, 2006; Rice and Ashby, 2007). This demonstrates that the scale measures the constructs in which it is proposed to measure and that individuals can be expected to answer similarly on the scale over time. The APS-R has also demonstrated convergent validity with Hewitt and Flett's Multidimensional Perfectionism Scale and the Frost Multidimensional Perfectionism Scale, indicating that the APS-R is related to measures that are examining similar constructs about perfectionism (Slaney *et al.*, 2001). The APS-R was selected for this study because of its well-established reliability and validity as an assessment tool. In addition, other measures such as Hewitt and Flett's or Frost's multidimensional scales were not selected because of the costs of obtaining the assessment tools as well as the advanced training required to administer them.

Procedure

The primary investigator returned to recruit participants for the study near the end of a class session for OTS 311. Students were given the opportunity to leave class early if they did not wish to participate in the research. After providing informed consent, students completed the APS-R during class time that was devoted to the study in this course. This scale was used to classify students as perfectionists and non-perfectionists based on their tallied scores. Participants in the perfectionists sample were further classified as adaptive or maladaptive perfectionists. All students in OTS 311 tracked their daily occupations for 24 hours a day over a week using time logs as part of an already required class assignment in the course; the researchers only had access to analyze time logs from those students who provided consent to participate in the study. Using a random digit table, a sub-sample of 20 perfectionists were selected to receive a follow-up qualitative survey via Survey Monkey. Sample size for qualitative research is typically smaller, as the purpose is not to generalize results to the larger population but to explore the experience of the study participants in a particular sample in great depth (Creswell, 2013). Additionally, only half the sample was chosen to receive a survey because of time constraints of the primary researcher as a full-time undergraduate student. Participants were asked to respond to four demographic and four open-ended questions. Qualitative, open-ended survey items related to the positive and negative effects of perfectionism on health, daily life and social interactions and are listed below. Questions for the survey were developed based on information in the literature regarding perfectionism. While time constraints did not allow researchers to review results with all individuals who completed the survey, member checking was conducted with one randomly selected survey participant via email to ensure the accuracy of the themes that were derived from the survey responses and to provide an opportunity for any additional insights. Peer review was completed between the first and second authors to confirm study themes and decisions made throughout the research study.

Open-ended survey questions

- Q1. Please describe how perfectionism has impacted or currently impacts your daily life.
- Q2. Please describe how perfectionism has positively influenced or currently influences your health.

- Q3. Please describe how perfectionism has negatively influenced or currently influences your health.
- Q4. Please describe any stereotypes and/or negative experiences you may have encountered as a perfectionist.

Data analysis

Following data collection, analysis of the quantitative and qualitative data was completed separately. Completed time logs from all four samples (all perfectionists, adaptive perfectionists, maladaptive perfectionists and non-perfectionists) were examined for differences in time spent in pleasurable, productive and restorative occupations. Areas of occupation were color-coded on the time logs to reflect these different categories by student participants as part of their class assignment requirement. Students were educated by the same instructor regarding Pierce's categorization of occupation in OTS 311, supporting similar knowledge and understanding of these categories across participants. Descriptive statistics and two tailed *t*-tests were used to review the differences in time spent in each area of occupation between the perfectionists and non-perfectionists, as well as the adaptive and maladaptive perfectionists. Descriptive statistics included the mean or average amount of time each group spent engaged in Pierce's categories of occupation, as well as the standard deviation for time-use. Two tailed *t*-tests were used for inferential statistics to determine whether or not there was a true difference in the average amount of time participants from each group spent engaged in Pierce's three categories of occupation. Thematic analysis was used to derive meaning from qualitative survey responses by the primary researcher, which involved identifying several broad themes or units of information to reflect the main essence of participants' responses (Creswell, 2013). Constructivism was used broadly by the researchers as a theory to recognize multiple realities and perceptions related to perfectionism that might exist among participants, as well as to support the emergent nature of findings from the qualitative responses on the survey (Creswell, 2013). A written document of all open-ended survey responses was compiled. The primary researcher completed memoing after reading the responses fully and recording initial impressions related to the data. The next steps involved highlighting important statements relevant to the study topics, followed by placing these important statements into related categories and then further collapsing these statements into the final study themes. Study themes emerged directly from participants' words and experiences.

Results

Participants

Of 55 potential participants, 44 students completed the APS-R questionnaires resulting in a response rate of 80 per cent. Of those participants, 41 were identified as perfectionists (93.2 per cent), while 3 participants were identified as non-perfectionists (6.8 per cent). Within the perfectionist sample, 22 participants (53.7 per cent) were identified as adaptive perfectionists and 19 participants (46.3 per cent) were found to be maladaptive perfectionists.

Surveys were sent to ten participants classified as adaptive perfectionists and ten participants classified as maladaptive perfectionists. All participants were sent the same email and their categorization as an adaptive or maladaptive perfectionist was not disclosed to avoid potentially influencing the respondents' answers. All participants within this survey sample identified their age to be in the 18-24 category in the demographic section of the survey. While the inclusion criteria for the study was broader to allow older, non-traditional students to take part in the study, the current students in

the Occupational Science program at the time of this research were all younger, traditional college students. From the perfectionist survey sample ($n = 20$), 19 responses were collected, resulting in a 95 per cent response rate. There were 15 female participants (78.9 per cent) and 4 male participants (21.1 per cent). Roughly half the sample, 11 participants, considered themselves perfectionists before the study and 8 did not. When asked if others considered them to be perfectionists, 14 participants (73.7 per cent) indicated others did, while 5 participants (26.3 per cent) responded that peers had not previously identified them as a perfectionist.

Quantitative analysis

From the APS-R, participants were classified into three groups: perfectionists who were further classified as adaptive perfectionists and maladaptive perfectionists and non-perfectionists. Using these classifications, time logs were analyzed using descriptive analysis. The first analysis that was conducted solely relied upon the averages of time-use between the groups to compare the percentage of time that each group spent in productive, pleasurable and restorative occupations. One non-perfectionist chose not to participate in the time log analysis, reducing the non-perfectionist sample size from three to two participants. One person from the maladaptive group and one person from the adaptive group also failed to turn in their time logs, reducing each sample by one participant for time log analysis. Students reported time use in percentages on the time logs, and the averages that were calculated were reported in this same format as percentages. It was found that there was a slight difference between the time-use of the perfectionists and non-perfectionists using Pierce's classifications of occupation.

The initial analysis of the averages compared the perfectionists' and non-perfectionists' time use spent in pleasurable, productive and restorative occupations. The results are presented below in [Figure 1](#), including standard deviations with additional detail in [Table I](#).

Standard deviations are also presented in [Table I](#). Two sample t -tests were conducted using a significance level of .05 and the results were found to not be statistically significant ([Table I](#)). These results would indicate no true difference in time-use among perfectionists and non-perfectionists.

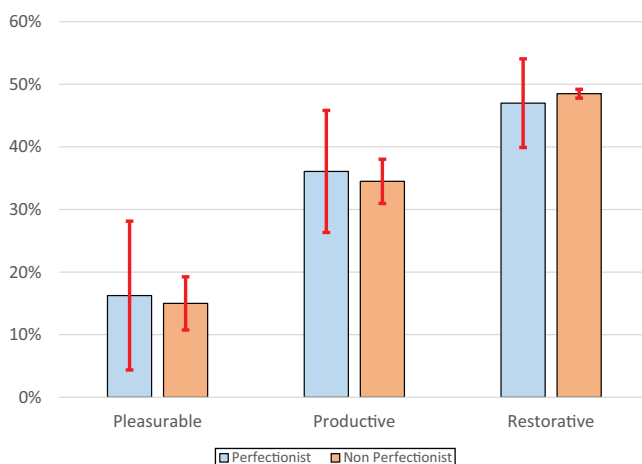


Figure 1.
Average time-use for
perfectionists and
non-perfectionists

Using the same process, further data analysis was conducted comparing the adaptive perfectionists and maladaptive perfectionists. Results are presented below in [Figure 2](#), including standard deviations with additional detail in [Table II](#).

The outcomes of the two sample *t*-tests, tested at a significance level of 0.05, showed that the results were not statistically significant ([Table II](#)). This would indicate no true difference in time-use between adaptive and maladaptive perfectionists.

Qualitative findings

From the coding process, the following four main themes emerged from the data: prioritizing and neglecting one’s health, achievement promoting self-confidence, people thinking I am a show-off and organizing time-use. Quotations are presented verbatim from the participants and may include grammatical and spelling errors. Participants were given numbers to protect anonymity.

Prioritizing and neglecting one’s health

Throughout the survey responses, 15 of the 19 participants consistently discussed how perfectionism positively or negatively impacted their physical and mental health. The health

Table I.
Perfectionists and non-perfectionists’ data results

Population	Sample size (N)	Sample mean (X)	Standard deviation (S)	<i>t</i> -score	<i>p</i> -value	α value
<i>Pleasurable occupations</i>						
Perfectionists	39	16.252	11.886	0.352	0.758	0.05
Non-perfectionists	2	15	4.246			
<i>Productive occupations</i>						
Perfectionists	39	36.083	9.751	0.537	0.646	0.05
Non-perfectionists	2	34.5	3.535			
<i>Restorative occupations</i>						
Perfectionists	39	46.987	7.0806	-1.22	0.234	0.05
Non-perfectionist	2	48.5	0.707			

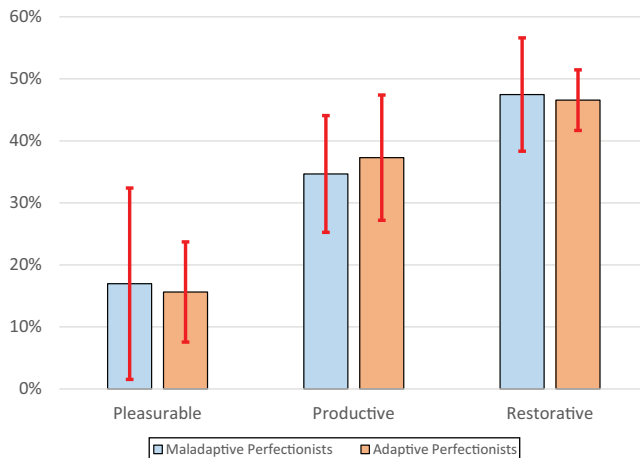


Figure 2.
Average time-use for adaptive and maladaptive perfectionists

benefits included spending more time engaging in exercise or working out, making more of an effort to select healthy food choices and making one's health a priority. As a result of these behaviors, participants felt that perfectionism positively influenced their body image and stress levels. The overall consensus from the participants was as one respondent described:

Being a perfectionist has allowed me to make my health a priority (P18).

Conversely, not all respondents felt that their perfectionism had a positive impact on their health. Several responses referenced the toll that perfectionism had on their physical well-being. Because of a need to achieve perfection in aspects of their life, especially education-related assignments, participants described neglecting their health by undereating or overeating, avoiding exercise, staying up late and spending copious amounts of time on school work. Along with the physical impacts, half of participants mentioned some form of stress such as worry, pressure to perform or being overwhelmed as a result of their perfectionism. One participant's response encompassed the thoughts that had been discussed by the majority of respondents who found perfectionism to have a negative health impact:

I do feel guilty for not taking better care of myself by exercising more and eating healthier food. Yet, the time restraints that I have because I spend so much time trying to do school assignments and other tasks to my satisfaction causes me to eat quick, unhealthy meals, and not get much exercise besides walking to class and the farm work [. . .] It has also caused me to stay stressed on a daily basis and constantly think about what I need to get done and when I don't get much rest and I don't have much of a social life because of the time constraints I place on myself (P4).

Achievement promoting self-confidence

Several participants expressed that perfectionism was a source of confidence and drove them to perform to the best of their abilities. Six respondents acknowledged that because they were perfectionists, they were successful in school and that success in academics improved their self-esteem. One participant even attributed their admission into the Occupational Science program to perfectionism, while others discussed how perfectionism provided them with pragmatic study skills that prevented procrastination:

Perfectionism has its perks. For example, I got an A on a paper because I did not procrastinate and researched extensively. This was great for my self-confidence and health (P16).

Population	Sample size (N)	Sample mean (X)	Standard deviation (S)	t-score	p-value	α value
<i>Pleasurable occupations</i>						
Maladaptive perfectionists	18	16.97	15.429	-0.329	0.744	0.05
Adaptive perfectionists	21	15.637	8.077			
<i>Productive occupations</i>						
Maladaptive perfectionists	18	34.666	9.414	0.841	0.405	0.05
Adaptive perfectionists	21	37.297	10.098			
<i>Restorative occupations</i>						
Maladaptive perfectionists	18	47.473	9.138	-0.375	0.710	0.05
Adaptive perfectionist	21	46.570	4.886			

Table II.
Adaptive
perfectionists and
maladaptive
perfectionists' data
results

People thinking I'm a show-off

In reviewing the survey responses, it became clear that there was a social component to perfectionism. Participants' responses demonstrated that perfectionism was noticed by peers and also affected interactions with others. Some individuals described that perfectionists were thought to be all knowing and infallible. As a result, the perfectionists did not receive the same assistance related to assignments and projects that other students received:

Asking others that know me, for assistance and/or feedback on an assignment often results in them dismissing my request or concerns because they assume that I've done well on the assignment and don't need help (P4).

There also appeared to be a disconnect between the intentions of the perfectionists and how they were perceived by their peers. Respondents listed names that they had been called or judgments that had been made about them based on their perfectionism. In attempting to do their personal bests, some perfectionists were thought to be domineering rather than helpful:

I have been called a Suck up, nerd, OCD, anal and bossy (P6).

Organizing and time-use

Time was a commonality among the majority of the responses. Participants described spending more time involved in school- or work-related endeavors than other students that took time away from leisure-based occupations. Participants attributed overemphasis in time spent in specific occupations to attempting to achieve perfection:

It is time consuming and stressful to make everything perfect (P15).

While the majority of participants focused on the lack of time they experienced in their responses, a few participants discussed how they liked to keep organized and how it gave life structure:

Being organized and on top of my school work is leading me towards where I want to be (P15).

Discussion

More perfectionists ($n = 41$) than non-perfectionists ($n = 3$) were identified in the study sample. The data reflect no difference in time spent in productive, pleasurable and restorative occupations between perfectionist and non-perfectionist Occupational Science students for this study's participants. These results held true for the adaptive and maladaptive perfectionists. While no true time differences were found in this study, it is possible that time-use may be perceived differently among these groups. For example, previous research has shown that when perfectionists exhibit workaholism, they have difficulty enjoying time spent in non-productive tasks (Bovornusvakool *et al.*, 2012). Even if perfectionists spend a similar amount of time in occupations that are non-productive, such as leisure and restoration, this time may not be fully experienced as enjoyable or relaxing by perfectionists. Future research should examine how perfectionists perceive time spent in categories of occupation compared to non-perfectionists, as experience of time-use could be more meaningful for health and well-being than actual amount of time spent in various occupations.

While quantitative data demonstrates a need for further research, the qualitative survey responses provided an authentic perspective of how perfectionism impacted the participants' occupations, health, daily life and social interactions. It became apparent in

reviewing the participants' answers that students expressed feeling a need for more or less time to engage in various occupations demonstrating a perceived lack of occupational balance. For example, many students discussed a perceived lack of time for non-productive activities such as eating and socializing because of needing to spend a significant amount of time in productive tasks related to their roles as college students. When considering the impact that perfectionism had on health, it was evident that health and occupation were interconnected. While some respondents considered perfectionism to have positively influenced their health through diet and exercise choices, more respondents discussed the adverse effects they experienced, such as poor diet, exercise and sleeping habits as well as increased stress and anxiety.

Despite often being construed as negative, perfectionism has also been shown to be linked to positive traits such as increased conscientiousness, extraversion and life satisfaction with adaptive perfectionism being further linked to decreased procrastination and reduced anxiety/depression (Stoeber and Otto, 2006). While it is conceivable that perfectionism could benefit these students in future academic endeavors because of these traits, it is important to also consider the potential negative impacts of actual or perceived occupational imbalance over time. For those who spend too much time in educational or other productive occupations, this behavior could manifest itself as workaholism in adulthood which has been linked to perfectionism in previous research (Wojdylo *et al.*, 2014). Multiple participants in this study discussed spending too much time completing academic assignments and the accompanying negative health consequences, such as exhaustion, lack of sleep and stress. Of these health effects, stress has been commonly reported among perfectionists in previous literature (Matuska, 2010). This is significant because chronic stress is a serious hazard to both mental and physical health (Chetty *et al.*, 2014; Huma *et al.*, 2012). Perfectionists in this study sample also reported further concerning health behaviors, such as lack of exercise, that have been associated with chronic physical and mental conditions such as cancer, heart disease, stroke and depression (Booth *et al.*, 2012).

In addition to impacting health, perfectionism also played a role in how students were perceived and treated by peers for participants in this study. Students reported that peers sometimes held negative views of them, such as that they were bossy or domineering. Peers were also less willing to help perfectionists when they asked questions or needed feedback because it was assumed that perfectionists did not need assistance from others to be successful. While peer perception of perfectionists has not been studied previously in college students, it has been examined in adolescents. Adolescent maladaptive perfectionists have been viewed less favorably by their same-age peers than adaptive perfectionists (Gilman *et al.*, 2011). It is perceivable that college students who are classified as maladaptive perfectionists could also be viewed less favorably by their peers. These perceptions could negatively impact current interpersonal relationships with others and potentially impact future relationships with co-workers as well. Perfectionist students who become occupational therapists may find that their requests for feedback from peers to improve their clinical practice are dismissed or that co-workers have negative opinions about their character related to perfectionism.

Students in Occupational Science and Occupational Therapy programs are in competitive programs and may be more prone to perfectionist traits. As future healthcare practitioners, maintaining a balance among occupations becomes significant, as healthcare workers fall into a high-risk category for burnout and job stress associated with productive occupations. Occupational therapists are not immune to experiencing burnout, and this can lead to decreased satisfaction and performance in one's job (Edwards and Drette, 2010). Striving for perfection may give the future occupational therapists from this study or

current occupational therapists, unrealistic expectations of their own abilities and may also impact how they experience time spent in non-productive tasks such as leisure. Because perfectionism has been linked to job burnout, students who meet criteria to be classified as perfectionists may be more prone to experience burnout later in their Occupational Therapy careers (Huo-Tsan *et al.*, 2016).

Occupational Therapy educators should educate students on potential negative health and career impacts of perfectionism. Requiring class assignments such as keeping track of one's time-use can help students identify their own imbalance to make healthy changes in their use of time, such as scheduling time daily for exercise and relaxation to avoid burnout. Instructors can also use teaching approaches that deemphasize high-stake graded assignments to allow students to focus more on learning. Offering multiple-graded assignments throughout the semester rather than just test grades, as well as providing feedback at multiple points in time for graded and non-graded assignments may help to shift the focus to learning for the sake of learning. Students who are grade-oriented rather than learning-oriented often exhibit poorer academic performance and view classroom content as a means to an end rather than as learning for a future purpose (Vallade *et al.*, 2014). Instructors should emphasize the importance of class concepts and link these to students' future practice, as occupational therapists to help shift students' views away from grades toward how course content will be important in the future beyond the classroom.

Limitations

The study's small sample recruited through convenience limits the ability to generalize this information to outside Occupational Science programs, both in the USA or internationally, as well as to other educational programs. Participants' prior knowledge of Occupational Science could have impacted the way students responded on survey items. Persons with perfectionistic traits may be more likely to engage in research activities than non-perfectionists, and the remaining 11 potential participants who did not complete the APS-R could belong to the non-perfectionist category which may have impacted the study's results. Because of time restraints, survey responses were used in place of a more in-depth interview process. Another limitation was the inclusion of participants' time logs, which were subjective in nature regarding how students categorized their occupations. Even though participants received instruction regarding Pierce's categories of occupation from the same professor, students still may have categorized their occupations differently. In addition, time logs reflected only a week of data; if students experienced an atypical week of occupations, then this could have skewed results regarding time-use. Finally, the disparity between the number of participants in each group and the small size of the non-perfectionist group may have impacted statistical analysis results. However, de Winter (2013) argues that paired *t*-tests can be used effectively in sample sizes as small as $N = 2$, which is the same as the size of the participating non-perfectionist group in this study. de Winter (2013) examined small sample sizes from $N = 2$ to $N = 5$ through a simulation study and concluded that there were no principle objections to using a *t*-test for statistical analyses in these very small sample sizes.

Conclusion

The intent of this research was to examine how time-use and human occupation were influenced by perfectionism for a class of junior Occupational Science students. More students were identified as perfectionists than non-perfectionists within the study sample. Perfectionists spent a similar amount of time engaged in productive, pleasurable and restorative occupations compared to students who were identified as non-perfectionists.

Similarly, no significant differences in time-use were found between adaptive and maladaptive perfectionists. Perfectionists expressed both positive and negative health consequences related to their perfectionism. Identifying how perfectionists and non-perfectionists experience time-use could have important implications for health and well-being. Continued research on this topic would be of interest to occupational scientists and occupational therapists, as the implications for these students moving forward directly relates to their health and future success in the Occupational Therapy profession.

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