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ORIGINAL ARTICLE

HEXACO personality factors as predictors of physical activity, resting heart rate, body mass index, and healthy lifestyle behaviors

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BACKGROUND
Personality traits are known factors that may influence levels of physical activity and other healthy lifestyle measures and behaviors that ultimately lead to health problems later in life.

PARTICIPANTS AND PROCEDURE
The aim of this study was to examine the association between personality traits (HEXACO) and levels of physical activity and resting heart rate (RHR) – measured using Fitbits, BMI, and a self-reported whole-person healthy lifestyle score for $N = 2580$ college students. Data were collected and analyzed for students enrolled in a University Success type course from August 2017 to May 2021. The relationships between HEXACO personality traits and various physical activity and healthy lifestyle behaviors were analyzed by building several multiple regression models using R version 4.0.2.

RESULTS
In general, students who are extraverted were more physically active and students who are more open to experience had a higher RHR, even when controlling for gender. Females and males however had different profiles as to how personality influenced physical activity and other health-related measures. Male extraverts with high negative emotionality scores tend to be more physically active, whereas females tend to be more physically active when they were high in extroversion and conscientiousness, and low in openness to experience. BMI values were higher for female participants with high honesty-humility and low agreeableness and conscientiousness scores. Females also had a lower RHR for high honesty-humility and emotionality and low conscientiousness scores.

CONCLUSIONS
Personality can influence levels of physical activity, RHR, and BMI. This is especially true of women. Being aware of one's personality and the relationship of personality traits to levels of physical activity and other measures of leading a healthy lifestyle can be beneficial in determining strategies to improve long-term health outcomes.

KEY WORDS
personality; physical activity; resting heart rate; body mass index; healthy lifestyle

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BACKGROUND

Remaining physically active is paramount to leading a healthier and longer life (Gaesser & Angadi, 2021). Therefore, understanding the personality-related predictors of physical activity is of the utmost interest for educational researchers, for physical activity instructors, and for individuals themselves. Researchers in the fields of psychology and exercise science have increasingly collaborated, with many investigations examining the link between personality traits and physical activity tendencies. Researchers have observed and drawn conclusions from specific personality related characteristics, including type A personalities (Girdano et al., 1990), self-concept (Biddle, 1995; Marsh & Redmayne, 1994; Sonstroem, 1984; Sonstroem et al., 1994) and grit (Duckworth & Quinn, 2009). However, much of the focus has come from examining the relationship between the Big Five personality traits (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) and physical activity. A proposed revision of the standard Big Five model, to include an honesty-humility trait, called the HEXACO model, has been proposed (Ashton & Lee, 2008). However, to date, little has been done in the way of studying how the HEXACO model traits predict levels of physical activity and other health-related measures.

Personality traits reflect characteristic patterns of thoughts, feelings, and behaviors as measured, typically, by five traits (Big Five model): openness to experience – inventive/curious vs. consistent/cautious, conscientiousness – efficient/organized vs. extravagant/careless, extraversion – outgoing/energetic vs. solitary/reserved, agreeableness – friendly/compassionate vs. critical/rational, and neuroticism – sensitive/nervous vs. resilient/confident (Roccas et al., 2002). A sixth trait, honesty-humility – which in turn has four facets (sincerity, fairness, greed avoidance, and modesty) – has been suggested (Ashton & Lee, 2008). Persons who score higher on the honesty-humility scale avoid manipulating others, follow rules, are uninterested in lavish lifestyles, and do not feel entitled. Conversely, persons who score lower on the honesty-humility scale will flatter others to get what they want, are motivated by personal gain, are willing to break rules to attain personal profit, and have a strong sense of self-importance (Ashton et al., 2014).

PERSONALITY AND PHYSICAL ACTIVITY

It appears from different studies that personality is a factor in the intensity levels of physical activity (Lodewyk & Sullivan, 2017). For example, studies have found that there is high correlation between the extraverted personality dimension and higher levels of moderate-to-vigorous physical activity (Joyner & Loprinzi, 2018; Karvonen et al., 2020; Lodewyk & Sullivan, 2017; Stieger et al., 2020).

Courneya and Hellsten (1998) found that greater openness to experience was correlated with moderate exercise and that higher scores in extraversion and conscientiousness were significant predictors of strenuous exercise activity. Meira et al. (2020) found that higher conscientiousness, extraversion, and agreeableness scores positively correlated with participation in new fitness activities and more social exercise settings.

Most studies, however, have relied on self-reported levels of physical activity, which may adversely influence the results. For example, Wilson et al. (2015) found that the relationship between personality and physical activity differs according to the method used to measure it. Using fitness trackers will give more accurate physical activity measures, even though persons with low conscientiousness are not motivated by tracking or feedback techniques (Wilson & Rhodes, 2021).

PERSONALITY AND RESTING HEART RATE

A low resting heart rate (RHR) is considered an indicator of good cardiovascular health. However, correlations with personality and broader behavioral traits reveal a more nuanced situation. For example, Kavish et al. (2020) found a positive correlation between RHR and the personality factors of openness to experience and conscientiousness. A low RHR is also associated with some negative behavioral traits. For example, Portnoy et al. (2019) reported that RHR was negatively associated with academic dishonesty in females (there was no significant difference in males). Some studies even seem to suggest that having a low RHR may be a predictor of antisocial behavior, criminal behavior, or even psychopathy (Duindam et al., 2021; Kavish et al., 2020).

PERSONALITY AND BODY MASS INDEX

There are many factors, such as a lack of physical activity and nutrition, which can cause obesity, but more studies are also showing the relationship between the psychological aspects of personality and variations in BMI (Tekin et al., 2020). Studies consistently relate high BMI values with high neuroticism and low conscientiousness (Armon et al., 2013; Brummett et al., 2006; Chapman et al., 2009; Faith et al., 2001; Jokela et al., 2013; Kakizaki et al., 2008; Magee & Heaven, 2011; Sutin et al., 2011; Sutin & Terracciano, 2016; Terracciano et al., 2009), but different studies have reported conflicting findings for the same personality traits, including extraversion (Faith et al., 2001; Kakizaki et al., 2008; Terracciano et al., 2009)

and agreeableness (Brummett et al., 2006; Chapman et al., 2009). Such conflicting findings are, at least in part, due to personality differences across the sexes (Soto et al., 2011) and sex-related differences in the associations between BMI and the broad personality traits. Explicitly, women, on average, score higher in neuroticism than men, and men, on average, score higher in extraversion than women (Brummett et al., 2006; Faith et al., 2001; Provencher et al., 2008; Vainik et al., 2019). Thus, studies exploring the relationship between personality factors and BMI should control for sex.

PERSONALITY AND HEALTHY LIFESTYLE BEHAVIORS

While many studies have investigated the role of personality in several exercise outcomes, there is a growing body of work concerning how individuals with certain personality traits choose and maintain healthy lifestyle behaviors. The aim of such research is to examine interactions between personality traits, such as conscientiousness or extraversion, and participation in beneficial lifestyle behaviors such as eating a balanced diet and/or participation in regular physical activity. One such study, conducted by Lee and Sibley (2019), found that those who demonstrated healthy dietary behaviors exhibited higher levels of conscientiousness and honesty-humility, while neuroticism predicted a low importance rating for making healthier dietary decisions (Lee & Sibley, 2019). Lipowski and Bieleninik (2014) discovered that conscientiousness in males participating in specific combat sports or in individual sports was positively linked to proper nutrition habits. The same study, when looking at female combat athletes, uncovered that conscientiousness and neuroticism were inversely related to common health practices defined as those activities that do not knowingly contribute to early death (Lipowski & Bieleninik, 2014). College-age students scoring high in openness, conscientiousness, and extraversion were more likely to make healthier dietary decisions, including eating more fruits and vegetables, and making choices to avoid high-risk activities associated with early morbidity (Conner et al., 2018; Raynor & Levine, 2009).

SEX DIFFERENCES IN PERSONALITY

Researchers have repeatedly found significant sex differences in Big Five, HEXACO, and similar personality measures (Bunker et al., 2021; Costa et al., 2001; Feingold, 1994; Garcia et al., 2022; Karvonen et al., 2020; Lee & Ashton, 2020; Lodewyk & Sullivan, 2017; Vecchione et al., 2012; Weisberg et al., 2011). However, the specific traits that are found to be stronger in men versus women differ by study. The most common theme among these studies was that women scored higher on either emotionality, neuroticism, or another similar measure such as anxiety. Higher emotionality was the only sex difference that Garcia et al. (2022) found across 18 countries and various ages. In several studies women scored higher on almost all personality factors except extraversion, but some of the effect sizes were relatively small (Bunker et al., 2021; Feingold, 1994; Vecchione et al., 2012; Weisberg et al., 2011). Bunker et al. (2021) found that these sex differences can vary depending on online or offline contexts. Vecchione et al. (2012) found that all of the Big Five personality traits and their sex differences, except for extraversion, increased over time from age 16 to 20.

PARTICIPANTS AND PROCEDURE

WHOLE PERSON EDUCATION

For over 50 years, ever since its founding, Oral Roberts University (ORU) has had a whole-person approach to education where students are required to participate in activities and to take classes that develop their whole person: spirit, mind, and body. Since 2016, ORU has encouraged all students to use a Fitbit. This wearable technology helps Health and Physical Education (HPE) professors track their students' physical fitness and promotes a healthier lifestyle on campus. One mandatory HPE class per semester helps the students enhance their physical health and meet the physical aspects of the requirements of their whole-person education.

HPE courses at ORU, including the course in which all study participants were enrolled, encourage students to wear a Fitbit, which has proved to be a reliable device for tracking and reporting physical activity with steps taken daily. These results are then uploaded to the HPE professor's course section in the institution's course management system. Students are graded on the number of steps they take daily and the time they actively exercise weekly. The University has a goal for students of at least 10,000 steps/day and 150 active minutes weekly (Broaddus et al., 2019).

PARTICIPANTS

The protocol of this study was approved by the university's Institutional Review Board (IRB: F2018-14). The sample consisted of $N = 2580$ college students, consisting of $N = 1020$ men and $N = 1560$ women. All participants were enrolled in GEN 150 – Introduction to Whole Person Education at Oral Roberts University (ORU), Tulsa, OK, USA (August 2017–May 2021).

MEASURES

Physical activity (steps) and RHR data were collected over the entire semester from the Fitbit devices, and lifestyle behaviors were surveyed using the ORU Lifestyle Survey.

The ORU Lifestyle Survey is a 35-question survey with items covering aspects of personal health care, drug and alcohol use, physical fitness, psychological condition, spiritual condition, personal behavior, and nutrition (Huber, 2016). Based on the assessment scores, lifestyles were divided into five categories: 1) very healthy (< 40); 2) healthy (41-70); 3) average (71-100); 4) unhealthy (101-130); and 5) very unhealthy (> 131). The lifestyle survey instrument is based on several validated lifestyle surveys (see Huber, 2016 for details). Items were selected to match the institution's whole person education philosophy and student learning outcomes and informed by expert review by the institution's health and physical exercise faculty members.

Height, weight, and BMI were measured during class. Upon completion of registration and enrollment at ORU, new students have the choice between two Fitbit models: the Charge HR and the Alta HR. Both models, updated each year with new model iterations, measured steps taken, distance traveled, calories burned, floors climbed, sleep monitoring, and heart rate. Data collected by ORU included steps taken, heart rate to determine if the students were achieving set aerobic activity minutes based on their age, and RHR.

HEXACO. A personality inventory (HEXACO) is also collected for all students in GEN 150 using PathwayU, an online platform that helps students connect the results from personality, skills, abilities, and interest inventories to choices about education, career, and employment (PathwayU, 2020). PathwayU inventories personality traits using the 60-item HEXACO Personality Inventory-Revised (Ashton & Lee, 2008). This inventory measures the six major dimensions of personality: honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience. Participants rate each item on a 5-point Likert scale from 1 (*completely disagree*) to 5 (*completely agree*). Example items from each domain:

1. Honesty-humility: I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed.
2. Emotionality: I would feel afraid if I had to travel in bad weather conditions.
3. Extraversion: I feel reasonably satisfied with myself overall.
4. Agreeableness: I rarely hold a grudge, even against people who have badly wronged me.
5. Conscientiousness: I plan ahead and organize things, to avoid scrambling at the last minute.
6. Openness to experience: I would be quite bored by a visit to an art gallery (reverse scored).

Data downloaded from our PathwayU site only contain domain-level total scores and thus a Cronbach's α analysis of internal consistency was not possible.

DATA ANALYSIS

De-identified data for students enrolled in GEN 150 – Introduction to Whole Person Education from August 2017 to May 2021 were provided to the research team and pre-processing was done using Excel. Entire rows for several students who did not complete the HEXACO personality inventory were deleted. Entries for students who had a score of zero for the honesty-humility factor, steps values less than 350 or greater than 20,000, or a BMI values less than 15 or greater than 50 were replaced with NA values. This left a dataset of N = 2580 students (1020 men, 1560 women) with data values for steps per day, RHR, lifestyle score, and the six HEXACO personality traits: honesty-humility, negative emotionality, extraversion, agreeableness, conscientiousness, and openness to experiences. This dataset is available under a CC0 license from Figshare (Anderson et al., 2022).

In order to examine the role of HEXACO personality traits in predicting various physical activity and healthy lifestyle behaviors, several multiple regression models were built for significantly correlated factors, determined by Pearson correlations at a significance level of $p < .05$. Normality was tested for using the Shapiro-Wilk test and differences in measures by sex were tested for using the Wilcoxon rank sum test (since the measures were determined to be non-normal in nature). All statistical analyses were performed using R version 4.0.2 (R Core Team, 2020).

RESULTS

DISTRIBUTION ANALYSIS

Each study measure was tested for normality using the Shapiro-Wilk test. Of all the measures, only RHR was found to be normally distributed (overall: W = .99539, p = .287, female: W = .99503, p = .543, male: W = .99104, p = .561). All other measures (HEXACO, steps, BMI, and lifestyle score [LS]) were found not to be normally distributed ($p < .05$), even when controlling for sex. Thus to be consistent in reporting, we present all measures of central tendency as medians and all measures of dispersion as interquartile ranges (IQR, see Supplementary materials Table S1). Consequently, all statistical tests used were non-parametric in nature.

SEX DIFFERENCES

Sex differences in medians for each measure were tested for using the Wilcoxon rank sum test. Female students generally had significantly ($p < .05$) higher personality factor scores for all HEXACO personality factors except extraversion and openness to experience. Females had 8.9% higher honesty-humility scores ($p < .001$), 17.7% higher emotionality scores ($p < .001$), 2.7% higher agreeableness scores ($p < .001$), and 1.9% higher conscientiousness scores ($p < .001$). For the personality factors extraversion and openness to experience, there was no significant difference ($p = .5$ and $p = .06$ respectively) between males and females at the $p = .05$ level, though the sex difference for openness to experience would be significant at the sometimes used $p = .1$ level.

For the wellness measures (steps, RHR, BMI, and LS), sex differences were found for steps, RHR, and LS. Females had significantly ($p < .001$) lower steps per day counts, generally taking 796 fewer steps per day than their male counterparts. Females also tended to have a higher RHR ($p < .001$) and worse (4.4% higher) LS scores ($p < .001$). No significant sex difference was found for BMI ($p = .051$), though like openness to experience the difference would be considered significant at the $p = .1$ level. The summary of results of the sex difference data analysis is presented in Table S1 (see Supplementary materials).

CORRELATION COEFFICIENTS

Since there were significant sex differences for the majority of measures, correlation and regression analysis was performed on male and female data subsets separately. Pearson correlation coefficients were calculated between all measures for both males and females. Of the 90 correlation coefficients, 49 (22 male, 27 female) were significant at the $p = .05$ level. Multiple significant correlations between the HEXACO personality factors and the wellness measures were found. The honesty-humility personality factor was significantly correlated with RHR ($r = .18$, $p = .003$) and BMI ($r = .12$, $p < .001$) for females and LS ($r = .10$, $p = .016$) for males. Emotionality was significantly correlated with RHR ($r = .12$, $p = .050$) for females and LS for both females ($r = .20$, $p < .001$) and males ($r = .31$, $p < .001$). Extraversion was significantly correlated with steps and LS for both females ($r = .10$, $p < .001$; $r = -.32$, $p < .001$) and males ($r = .13$, $p < .001$; $r = -.37$, $p < .001$). Agreeableness was significantly correlated with LS for both females ($r = -.20$, $p < .001$) and males ($r = -.19$, $p < .001$). Conscientiousness was correlated with steps ($r = .08$, $p = .004$) for females and with LS for both females ($r = -.25$, $p < .001$) and males ($r = -.27$, $p < .001$). Finally, openness to experience was found to be significantly correlated with RHR for both females ($r = .14$, $p = .024$) and males ($r = .20$, $p = .022$) and with LS ($r = -.06$, $p = .034$) for females.

Several significant correlations were also found within both measure categories (personality and wellness). The summary results of the correlation analysis, including the intra-measure-category correlations, are presented in Tables S2 and S3 (see Supplementary materials).

LINEAR REGRESSION

Regression analyses, presented in Table S4 (see Supplementary materials), were used to assess the prediction of wellness measures (steps, RHR, BMI, LS) by HEXACO personality factors relative to each sex. The fitted regression models where a personality factor significantly ($p \leq .05$) predicted a wellness measure are as follows:

Female (sex − 0)

RHR = 59.96 + 2.15*H ($R^2 = .03$, $F = 8.82$, $p = .003$)
BMI = 20.26 + 1.08*H ($R^2 = .01$, $F = 12.50$, $p < .001$)
LS = 56.40 + 4.95*E ($R^2 = .04$, $F = 59.80$, $p < .001$)
RHR = 63.90 + 1.34*E ($R^2 = .01$, $F = 3.88$, $p = .050$)
LS = 100.10 − 7.69*X ($R^2 = .10$, $F = 169$, $p < .001$)
Steps = 8776 + 333*X ($R^2 = .01$, $F = 13.40$, $p < .001$)
LS = 98.47 − 6.74*A ($R^2 = .04$, $F = 58.90$, $p < .001$)
LS = 98.76 − 7.05*C ($R^2 = .06$, $F = 95.20$, $p < .001$)
Steps = 8783 + 319*C ($R^2 = .01$, $F = 8.38$, $p = .004$)
RHR = 63.43 + 1.37*O ($R^2 = .02$, $F = 5.14$, $p = .024$)
LS = 78.30 − 1.43*O ($R^2 = .00$, $F = 4.48$, $p = .034$)

Male (sex − 1)

LS = 80.64 − 2.67*H ($R^2 = .01$, $F = 5.83$, $p = .016$)
LS = 48.80 + 7.54*E ($R^2 = .09$, $F = 92.50$, $p < .001$)
LS = 99.02 − 8.19*X ($R^2 = .13$, $F = 137$, $p < .001$)
Steps = 9599 + 330*X ($R^2 = .02$, $F = 15.70$, $p < .001$)
LS = 95.03 − 6.68*A ($R^2 = .04$, $F = 33.70$, $p < .001$)
LS = 97.51 − 7.68*C ($R^2 = .07$, $F = 70.90$, $p < .001$)
RHR = 57.58 + 1.65*O ($R^2 = .04$, $F = 5.39$, $p = .022$)

In summary, we found that certain HEXACO personality factors can be used to predict, to varying degrees, all the wellness measures: Steps are predicted by extraversion for both females and males and conscientiousness for females; RHR is predicted by openness to experience for both females and males and honesty-humility and emotionality for females; BMI is predicted by honesty-humility for females; and LS is predicted by emotionality, extraversion, agreeableness, and conscientiousness for both females and males, openness to experience for females, and honesty-humility for males.

MULTIPLE LINEAR REGRESSION

Since several of the personality factors were significantly correlated with each other, multiple linear regression analyses were performed to assess the

strength of the relationships between several personality factor predictor variables and the wellness measures. By using a best subsets-based approach we determined the best (max adjusted R^2 with all factors significant at the $p = .05$ level) models by statistically eliminating noncontributing factors. The fitted regression models are as follows:

Female (sex − 0)

Steps = 8560 + 338*X + 275*C − 213*O (adj. R^2 = .01)
RHR = 58.2 + 2.73*H + 1.48*E − 1.58*C (adj. R^2 = .06)
BMI = 24.2 + 1.61*H − 0.98*A − 0.68*C (adj. R^2 = .02)
LS = 123 + 2.68*H + 2.25*E − 6.88*X − 7.01*A − 4.86*C (adj. R^2 = .18)

Male (sex − 1)

Steps = 8010 + 295*E + 562*X (adj. R^2 = .02)
RHR = 57.60 + 1.65*O (adj. R^2 = .03)
LS = 97.70 + 4.79*E − 6.61*X − 5.01*C (adj. R^2 = .21)

We note for completeness sake that a few models had slightly higher adjusted R^2 values when we considered factors included at the $p = .1$ level, namely:

Female (Sex − 0)

RHR = 54.20 + 2.66*H + 1.37*E − 1.50*C + 1.13*O (adj. R^2 = .07)
BMI = 23.00 + 1.67*H + 0.47*X − 1.07*A − 0.78*C (adj. R^2 = .03)

Male (sex − 1)

RHR = 55.40 − 1.53*H + 1.87*C + 2.04*O (adj. R^2 = .06)

DISCUSSION

The purpose of this study was to determine the associations between personality traits, as measured using a HEXACO inventory, and aspects of physical activity and other health components. We found that for both males and females, there was a positive correlation between extraversion and physical activity, and between openness to experience and RHR. This association between extraversion and physical activity is consistent with previous research (Rhodes & Smith, 2006; Wilson & Dishman, 2015). Individuals who are extraverted may enjoy the increase in positive emotions that occurs after engaging in physical activity and find it more rewarding than introverts (Wichers et al., 2012). Extraverts also tend to just sit around less than introverts (Ebstrup et al., 2013) due to their propensity to constantly seek out stimulation (Costa & McCrae, 2008). The reasons why there is a positive association between openness to experience and RHR, though consistent with previous findings (Kavish et al., 2020), are less clear. More work is needed in this area, especially at the facet level. For males, all factors except openness to experience were correlated with LS (see below) but no other single-factor correlations were found.

The higher RHR for females, in general, is explained by the relative difference in size between men and women: smaller persons, with smaller hearts – females – tend to have higher RHR (Ramaekers et al., 1998).

Unique to females, honesty-humility is significantly and positively correlated with BMI, Emotionality is significantly and positively correlated with RHR, and conscientiousness is significantly and positively correlated with physical activity. Thus, in general, female personality traits are more predictive of various physical activity and healthy lifestyle behaviors than those for their male counterparts. This is confirmed by the multiple linear regression analysis, where for females steps, RHR, and BMI are all predicted by a combination of three personality traits, whereas for men only steps and RHR are predicted by two and one personality trait respectively and the personality traits have no predictive ability for BMI for males at all. Quite why female personality traits are more predictive of various physical activity and healthy lifestyle behaviors than those for their male counterparts is unclear and further research needs to be conducted in this area, especially at the factor level. However, it is possible that our results may just reflect behavior resulting from traditional gender roles (Courtenay et al., 2002; Dawson et al., 2007).

LIFESTYLE SCORE

As observed in the multiple linear regressions, the strength of the relationships between the Lifestyle Survey and the HEXACO personality indicators appear to be greater than the strength of the relationships between the other wellness measures and the HEXACO personality indicators. This could point towards a significant relationship between the way that one lives one's life and one's personality. Living a healthy lifestyle involves short term sacrifices in exchange for long term benefits and requires self-control (Hoffmann & Risse, 2020). It is important to note, however, that both of these measures (Lifestyle Survey and HEXACO) are self-reported. A few of the questions that are asked in the Lifestyle Survey are very similar to those asked in the HEXACO questionnaire, causing the strength between the relationships of these models to appear greater than it actually is.

LIMITATIONS

One limitation discovered over the course of this study was the occurrence of students inflating the measurements of steps taken and heart rate. Steps could be falsified by securing the Fitbit device to something such as a fan to acquire more steps than truly taken. Heart rate minutes could be falsified by exposing the heart rate monitor to a screen flashing at the desired tempo. The research group is unaware of the prevalence of these tactics. However, an attempt to mitigate these effects on the results was made by removing several outlying data points that indicated inflated metrics.

The HEXACO inventory data collected were only available at the domain level. Several hard-to-interpret results could have benefited from a facet-level examination. This also meant that a Cronbach's α analysis of internal consistency was not possible for the HEXACO data.

The Lifestyle Survey implemented by the institution is geared towards the institution's students and is intended to measure aspects beyond just physical activity, strongly focusing on the whole person – body, mind, and spirit. In other words, this survey has a very specific definition of what it means to follow a healthy lifestyle.

CONCLUSIONS

The results of our study confirm the small but significant (+) correlation between extraversion and measures of physical activity for both sexes. Conscientiousness is also a significant (+) predictor of physical activity for women. Women had not only significantly different personality scores (honesty-humility [+], emotionality [+], agreeableness [+], and openness to experience [+]) and significantly different levels of physical activity (–) than their male counterparts, but also very different profiles as to predictability of all physical activity and healthy lifestyle measures. That is, this study suggests that personality is a much more significant factor when predicting the degree to which one leads a physically active and healthy lifestyle for females.

At a practical level, having an awareness of how personality can influence levels of personal physical activity and other health-related lifestyle choices can help determine how best to overcome any shortcomings – either for oneself or for others (e.g. a physical health and exercise professional) – with strategies and interventions that can be developed for each personality type or cluster, and by sex.

Supplementary materials are available on journal's website.

Disclosure

The authors declare no conflict of interest.

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