

Do Our Cell Phone Photographs Reveal Our Personalities?

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Abstract

Many researchers have explored what photography, autophotography, and photo essays can reveal about the characteristics of individuals. Some of this work focuses on the indications about the individual apparent in photos themselves (Ziller & Vern, 1988), themes present in photo essays of college students (Dollinger, 2017), and yet other work that has connected photographic content to psychological constructs of the photographers (McCain et al., 2016; Qui et al., 2015; Reece & Danforth, 2017; Sorokowska et al., 2016). The current study followed an approach informed by Gosling et al.'s (2002) behavioral residue hypothesis that originally looked at living and working spaces, then explored the effects of personality on one's behavior in online platforms (Gosling et al., 2011; Kosinski et al., 2013). We proposed an extension of these areas of research by examining whether or not subjects of photos taken by participants with their cell phones reveal characteristics of their self-reported personality (big five, intellect, and narcissism). Following previous research, we proposed several hypotheses between the subjects of participants' photographs and extraversion, agreeableness, openness to experience, neuroticism, and narcissism. Conscientiousness and intellect were examined only in exploratory analyses. In this study, we found extraversion, agreeableness, and openness to experience have the most prevalently detectable relationships with the subjects of photographs. While neuroticism and narcissism were correlated to the frequency of photo sharing and editing behaviors, they were not related to photo subjects in the ways we anticipated. Findings may inform future attempts to measure personality using behaviorally-based assessments, rather than self- or other-reported instruments.

Keywords: personality, photographs, cell phones, personality assessment, behavioral measures

Do Our Cell Phone Photographs Reveal Our Personalities?

Many researchers have explored what photography, autophotography, and photo essays can reveal about the characteristics of individuals who take or present them. Some of this work focuses on the themes apparent in the photos themselves, such as Ziller and Vern's (1988) examination of children's psychological niches. A psychological niche is constructed in the way individuals orient themselves toward components of their environments in order to create a sense of personal control and meaning within those environments. By asking children to describe themselves through personally taken photographs, researchers were able to distinguish signs of self-esteem, affluence and poverty, as well as other- and self-orientation (Ziller & Vern, 1988). Similarly, Dollinger (2017) found themes present in photo-essays of college students. Unidimensionality, or baseness in personality, and multidimensionality, or depth of personality, were determined by indications of creativity, emotion, relationships, and individuality depicted in photographs used to describe themselves along with short essays.

Other research has directly linked photographic content and characteristics to psychological constructs of the individuals taking the photos. For example, Reece and Danforth (2017) used computationally based, machine learning systems to reliably distinguish photographs posted on Instagram by individuals with depression from those posted by healthy controls. McCain et al. (2017) found reliably distinguishable features of selfies indicating narcissism. They found that grandiose narcissism correlated with posting sexier selfies with more provocative and "neater" appearances. Dark triad traits also correlated with greater numbers of selfies per day (McCain et al. 2017). The current study proposes an extension of this line of research in which we explore the relationships between various subjects of photographs taken by participants and their self-reported personality characteristics.

The approach adopted by this study is informed by Gosling et al.'s (2002) behavioral residue hypothesis, which posits that individuals leave evidence of their personalities in the environments in which they reside. This research is developed from Brunswik's (1956) lens model, which states that elements within an environment can serve as a kind of lens through which an observer may indirectly perceive underlying constructs. From this model, Gosling et al. surmised that two mechanisms linking the occupants to their environments: self-directed identity claims through which occupants directly choose to express their personality by means such as decorating, and behavioral residue through which the occupant's personality is unconsciously revealed in their environments. In this model, behavioral residue is apparent through two modes. First, interior behavioral residue states that if a person rates higher on any given trait, they will often express it more frequently within their environment than someone who does not rate as highly on that trait (e.g., a person who is higher in conscientiousness may have an alphabetically organized CD collection). Second is exterior behavioral residue, through which remnants of the occupant's life outside of the observed environment may be found within it (e.g., a person who is high in openness to experience may have plane tickets or concert tickets in their living space).

This research began in physical spaces, such as living and working spaces. More recently, however, researchers have investigated the effect of individuals' personality on cyber spaces in which they live. Both identity claims and behavioral residue can be seen in these online spaces. Gosling, Augustine, Vazire, Holtzman, and Graddis (2011) found that while online behaviors associated with personality traits such as agreeableness and neuroticism were not observable, participants scoring higher on extraversion tend to use online social networks as a means of exercising their need for socialization and maintaining social connections with friends. This claim was substantiated by correlations between self-reported personality inventories and self-

reported, as well as observed, Facebook activity. These online interactions leave behind behavioral residue in the form of number of friends, number of groups one belongs to, as well as number of posts and pictures on one's profile (Gosling et al., 2011).

Moreover, Konsinski, Stillwell, and Graepel (2013) found relationship between specific Facebook activity to traits and attributes of each participant that they may have considered private. These researchers found correlations between participants' "likes" and traits such as their religious affiliation, sexual orientation, political affiliation, substance use, elements of their family dynamic, as well as five factor model personality attributes. In particular, observations of a person's likes were found to be as informative of their openness to experience as the results of the personality test employed (Konsinski et al., 2013).

Extensive research has been conducted in order to study the relationships between cell phone usage and various life outcomes, many of which are negative. Researchers have examined and shown negative relationships between cell phone usage with GPA, job performance, and personal and professional relationships. Unlike many leisure activities, cell phone usage has been positively correlated with stress and anxiety (Lepp et al., 2015). Roberts, Pullig, and Manolis (2015) found that surveyed college students spent 97 minutes texting, 118 minutes searching the internet, 41 minutes on Facebook, 49 minutes reading emails, and 51 minutes talking on their cell phones per day. Given the amount of time individuals spend on their cell phones, perhaps it is not surprising to see these negative outcomes.

Use of cell phones in general has also been correlated with underlying personality elements. The authors documented the presence of multiple correlations between personality traits and various cell phone usage behaviors. Extraversion, correlated with low arousal, showed a relationship with high susceptibility to boredom leading individuals to seek stimulation through

their cell phones. Participants who scored higher on neuroticism scales were found to use their cell phones frequently as well. The authors surmised these individuals used their cell phones as a means of coping with stress and anxiety. They also proposed a similarity between cell phone usage and substance abuse, linked by trait impulsiveness (Roberts et al., 2015).

Qui, Lu, Yang, Qu, and Zhu (2015) linked photographs, specifically pictures of oneself or selfies, to personality factors. They found that while raters could accurately detect openness to experience, further accurate analyzation of personality factors was limited due to the high level of control inherent in the act photographing oneself. Selfies are often taken and used, such as posting on social media platforms, for the purpose of self-presentation in order to promote the self or receive positive feedback. Therefore, individuals commonly create photos that were found to not be representative of their actual personalities (Qui et al., 2015). Examining the actual photographs posted to social media may be limited in what they may reveal about personality; however, an examination of photographs prior to potential editing and selection may still be a fruitful endeavor.

The Current Study

Previous research has demonstrated that personality factors, such as the big five can have a discernable impact on the spaces in which people live and work, such as their bedrooms and offices (Gosling et al., 2002). This research has been followed by examinations of the effects of personality on the online spaces in which individuals reside such as the number of “friends” one has on Facebook (Gosling et al., 2011), and their “liking” behaviors (Kosinski et al., 2013). Further, studies have explored the discernable presence of depression in Instagram posts by comparing photographs posted by those diagnosed with depression compared to those without a diagnosis of depression (Reece & Danforth, 2017). Given the salient inclusion of depression as a

facet of neuroticism, it is likely that differences in neuroticism may be associated with photo-related behaviors.

The current study is an extension of this research in that it investigates the relationship between personality factors (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism, intellect, and narcissism) with the subjects of participants' photos taken with their cell phones, as well as the frequency of their photo editing and sharing behaviors. We propose several hypotheses (H), outlined below, regarding mean differences in personality traits as a function of the subjects of the photographs that participants have saved on their cell phones.

H1: Participants with photos of art will have higher mean scores on openness to experience than participants without photos of art.

H2: Participants with photos of landscapes will have higher mean scores on openness to experience than participants without photos of landscapes.

H3: Participants with photos of themselves (selfies) will have higher mean scores on neuroticism than participants without photos of themselves.

H4: Participants with photos of themselves (selfies) will have higher mean scores on narcissism than participants without photos of themselves.

H5-8: Participants with photos of others (i.e., significant others, children, other family members, and friends) will have higher mean scores on extraversion than participants without photos of others.

H9-12: Participants with photos of others (i.e., significant others, children, other family members, and friends) will have higher mean scores on agreeableness than participants without photos of others.

We also proposed that numbers of photos, and frequencies of photo sharing and editing behaviors will be functions of personality. Specifically, we hypothesized that the number of photos taken would correlate with extraversion (H13) and openness (H14), photo editing frequency would correlate with neuroticism (H15), agreeableness (H16), and narcissism (H17), and photo sharing frequency would correlate with extraversion (H18), neuroticism (H19), and narcissism (H20). In addition, we conducted exploratory analyses to examine the relationship between other personality factors (i.e., conscientiousness, intellect) and photo subjects and behaviors.

Methods

Participants

Participants were 247 individuals identified through Amazon's Mechanical Turk who responded to a survey regarding how they used their cell phones. Men and women were equivalently represented in the sample (124 men, 121 women, 2 not reported), and the median age of participants was 31 years ($M = 33.15$, $SD = 9.75$, range 18 - 73). Of the participants, 80.6% reported being employed, 12.1% reported being unemployed, 3.2% were retired, and 10.9% were students (some indicated multiple employment categories). Participants' educational levels included 13.8% with a high school diploma or less, 24.3% with some college, 42.1% with a Bachelor's degree, and 19.4% with a graduate degree. Eight people indicated that they did not take photographs with their cell phones (239 participants who reported taking photographs with their cell phones).

Measures

A 50-item personality inventory assessing the big five-factor personality traits was used to collect self-reported levels of extraversion, conscientiousness, neuroticism, openness to

experience, and agreeableness (IPIP-NEO; Goldberg et al., 2006). An additional 10 items were added to assess intellect (Gough, 1987), along with one item employed to assess narcissism (Konrath, Meier, & Bushman, 2014). Items employed to assess extraversion, conscientiousness, neuroticism, openness to experience, agreeableness, and intellect utilized 5 point rating scales to indicate how inaccurate or accurate a statement was (1 = Very inaccurate, 2 = Inaccurate, 3 = Neither inaccurate nor accurate, 4 = Accurate, 5 = Very accurate). For example, participants were asked how accurate or inaccurate a statement such as *I know how to captivate people*, or *I get things done quickly*. Some questions were reverse coded.

Additional items were included to assess photographic behaviors of participants. Participants were asked to identify whether their photos included each of the following subjects: self, significant others, other family members, children, friends, locations/landscapes, food, and art. Participants reported the number of photos saved on their cell phones. Finally, in a single item for each, participants were asked to report the frequency of their photo sharing and photo editing behaviors (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = All of the time).

Procedure

Participants were recruited using Amazon Mechanical Turk for a study that examined how people use their cell phones. Participants completed a survey that assessed their self-reported big five personality factors, intellect, and narcissism. They were also asked to report whether or not they had pictures of various subjects saved on their cell phones, as well as the frequency of their photo editing and sharing behaviors.

Results

Means of openness to experience scores for participants with each photo subject versus participants without each photo subject are visually presented in Figure 1. Means and standard

deviations for openness to experience are reported in Table 1, followed by *t*-tests examining the differences between those two openness to experience means. Statistically significant differences in openness to experience were observed for photographs with art (H1 supported), landscapes (H2 supported), children, and food as subjects. Openness to experience and the number of photos were not correlated, $r(245) = .09, p = .14$ (H14 not supported). Openness to experience was also not correlated with photo-sharing frequency, $r(246) = .02, p = .78$ or with photo-editing frequency, $r(246) = .02, p = .73$.

Means of neuroticism scores for participants with each photo subject versus participants without each photo subject are visually presented in Figure 2. Means and standard deviations for neuroticism based on the presence of various photo subjects are reported in Table 2, followed by *t*-tests examining the differences between those two neuroticism means. No statistically significant differences in neuroticism between these groups were observed (H3 not supported). However, neuroticism and the number of photos were positively correlated, $r(245) = .13, p = .04$. Neuroticism was positively correlated with photo-sharing frequency, $r(246) = .16, p = .01$ (H19 supported) and with photo-editing frequency, $r(246) = .25, p < .01$ (H15 supported).

Means of narcissism scores for participants with each photo subject versus participants without each photo subject are visually presented in Figure 3. Means and standard deviations for narcissism are reported in Table 3, followed by *t*-tests examining the differences between those two narcissism means. Statistically significant differences in narcissism were observed for photographs with pets, landscapes, and art as subjects (H4 not supported). Narcissism and the number of photos were not correlated, $r(245) = -.02, p = .73$. Narcissism was positively correlated with photo-sharing frequency, $r(246) = .20, p < .01$ (H20 supported) and with photo-editing frequency, $r(246) = .39, p < .01$ (H17 supported).

Means of extraversion scores for participants with each photo subject versus participants without each photo subject are visually presented in Figure 4. Means and standard deviations for extraversion are reported in Table 4, followed by *t*-tests examining the differences between those two extraversion means. Statistically significant differences in extraversion were observed for photographs with significant others, other family members, friends (H5, H7, and H8 supported), and art as subjects. Extraversion and the number of photos were positively correlated, $r(245) = .16, p = .01$ (H13 supported). Extraversion and photo-sharing frequency were also positively correlated, $r(246) = .21, p = .01$ (H18 supported). However, extraversion and photo editing frequency were not correlated, $r(246) = .10, p = .12$.

Means of agreeableness scores for participants with each photo subject versus participants without each photo subject are visually presented in Figure 5. Means and standard deviations for agreeableness are reported in Table 5, followed by *t*-tests examining the differences between those two agreeableness means. Statistically significant differences in agreeableness were observed for photographs with other family members (H11 supported) and landscapes as subjects. Agreeableness and the number of photos were not correlated, $r(245) = -.02, p = .78$. Agreeableness and photo-sharing frequency were not correlated, $r(246) = .07, p = .28$. However, agreeableness and photo-editing frequency were positively correlated, $r(246) = .23, p < .01$ (H16 supported).

Means of conscientiousness scores for participants with each photo subject versus participants without each photo subject are visually presented in Figure 6. Means and standard deviations for conscientiousness are reported in Table 6, followed by *t*-tests examining the differences between those two conscientiousness means. No statistically significant differences in conscientiousness were observed for any photo subject. Conscientiousness and the number of

photos were not correlated, $r(245) = .03, p = .63$. Conscientiousness was not correlated with photo-sharing frequency, $r(246) = .00, p = .96$ or with photo-editing frequency, $r(246) = .12, p = .05$.

Means of intellect scores for participants with each photo subject versus participants without each photo subject are visually presented in Figure 7. Means and standard deviations for intellect are reported in Table 7, followed by *t*-tests examining the differences between those two intellect means. Statistically significant differences in intellect were observed for photographs with significant others as subjects. Intellect and the number of photos were not correlated, $r(245) = .06, p = .38$. Intellect and photo-sharing frequency were not correlated, $r(246) = .02, p = .79$. However, intellect and photo-editing frequency were positively correlated, $r(246) = .21, p = .01$.

Discussion

We hypothesized several relationships between personality factors and photograph-related behaviors, and many were supported by the data. The results of this study were consistent with previous research relying on a behavioral residue approach. The big five personality factors of extraversion, agreeableness, and openness to experience were most evident in analyses of photographs stored on participants' cell phones. We found less evidence to support our hypothesized relationships involving neuroticism and narcissism.

Our study is a continuation of prior research in that these results are seen in investigations of the effects of personality on living spaces and other electronic spaces. This may be due to the nature of the ways these characteristics manifest themselves. Individuals with high levels of extraversion, by definition, will likely seek out situations in which they would encounter others, such as the ones we measured: significant others, family members, and friends.

Similar processes could be theorized for agreeableness. People high in agreeableness may find themselves frequently around others, predictively rendering the photos saved on their cell phones to involve others. While we anticipated that the data would yield additional statistically significant relationships, differences in means of agreeableness in individuals with photos of family members were statistically significant. This indicates that those with higher levels of agreeableness were likely to have photos of family members. Differences in means of agreeableness were also found for landscapes.

Openness to experience, another of the three traits most prominently demonstrating relationship with behavior in the previous literature, was also hypothesized to work similarly. By definition, individuals rating high in openness to experience will often find themselves in novel situations, surrounded by new and different people. This was demonstrated by photos in this study, where we found differences in openness for landscapes, art, and food photos. Differences in means for openness to experience for participants that had photos of children saved on their cell phones were also found.

This pattern of findings in behavioral residue research is thought to be due to the highly observable nature of extraversion, agreeableness, and openness to experience. These factors tend to manifest themselves as interest in activities and interactions with others and other public behavior. Further, in our case, they are the activities and interactions that can be easily and are often photographed. Conversely, conscientiousness and intellect, may not have been observed in our study because they may be more task-oriented in their behaviors rather than the public expressions discussed previously as more personal interaction.

Neuroticism has been detected in previous research of photo-essays (Dollinger, 2017) and photos posted on Instagram (Reece & Danforth, 2017). However, no statistically significant

differences were found in means of neuroticism for any of our proposed subjects of photos. This could be explained by the tendency of individuals who rate higher on scales of neuroticism to mask this part of their personality. This tendency to avoid the judgment of others is characteristic of neuroticism as a personality factor. Similar to tendencies seen by Ziller and Vern (1988) and Reece and Danforth (2017) however, positive significant relationships were seen between rates of neuroticism and photo sharing and editing frequency. This may also be explained by the tendency of those rating higher on neuroticism to attempt to avoid judgment through impression management.

McCain et al. (2016) found narcissism to be positively correlated with selfies taken per day. Further, these researchers were able to reliably determine differences between vulnerable and grandiose narcissism based upon characteristics of participants' selfies. We hypothesized a statistically significant difference in means of those who indicated identifying higher with narcissism and selfies; however, the data did not support this hypothesis. Means of those who reported higher narcissism did show a statistically significant difference for photos of pets, landscapes, and art. Perhaps these individuals may be more inclined to share with others evidence and artifacts of their own personal interests and activities they enjoy. However, the strength of our measure should be taken into consideration as a limitation of this study. We measured narcissism with a single item. A more comprehensive and reliable measure may yield a different result in future research. Narcissism was also found to be significantly positively correlated with editing and sharing frequencies. Like with neuroticism, this may be attributed to impression management--the tendency of vulnerable narcissists who are generally high in both approach and avoidance motivation, leading to staged, edited, filtered, or cropped selfies (McCain et al., 2016).

Our study is an extension of the investigation of the ways an individual's personality is detectable in the spaces in which they live, including their technological spaces. The novel environment of photographs saved on one's cell phone is an area which we think holds potential for further research. We propose a number of suggestions for future investigation to address some of the limitations of the current study. For example, the dichotomous nature of our questions concerning photo subjects and behaviors yielded data that lacked desired specificity and strength. Future research in this domain may be more informative with a stronger focus on the qualities of the photos including an examination of the photos themselves, rather than relying upon self-reported dichotomous questions of photo subjects alone. This would allow a more nuanced understanding of how personality is revealed through photo-taking behavior, more sophisticated analyses, and stronger personality inferences that one may make based on photographic evidence. Further, it should be acknowledged that we ran numerous comparisons which increased our family-wise error rate. Controlling for the number of comparisons may reduce the number of significant findings in this study; however, it is relevant to note that 13 of 20 explicitly stated hypotheses were supported.

This research informs current and future work that attempts to advance personality assessment from traditional self- or other-reported personality methods to more behaviorally-based personality assessment methods. By investigating the pictures stored on an individual's cell phone, we believe it is possible to gain a clearer understanding of their unfiltered personality as compared to content that one may post online for the purposes of impression management.

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Table 1.

Openness to Experience Tests of Means for each Photo Subject

Subject of photos	Subject Not Present		Subject Present		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Self	3.47	0.66	3.43	0.65	0.43	.67
Significant other	3.41	0.59	3.46	0.70	-0.64	.53
Children	3.57	0.65	3.29	0.62	3.47	<.01
Other family	3.40	0.65	3.48	0.66	-1.03	.31
Friends	3.41	0.66	3.46	0.65	-0.50	.62
Pets	3.36	0.62	3.51	0.67	-1.84	.07
Landscapes	3.29	0.61	3.55	0.66	-3.11	<.01
Art	3.39	0.64	3.59	0.68	-2.10	.04
Food	3.37	0.64	3.55	0.66	-2.02	.04

Note. Openness to experience means and standard deviations across photo subjects are based upon whether or not each subject was reported as present. Total sample size = 247.

Table 2.

Neuroticism Tests of Means for each Photo Subject

Subject of photos	Subject Not Present		Subject Present		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Self	2.50	0.83	2.59	0.75	-0.82	.42
Significant other	2.63	0.75	2.51	0.79	1.20	.23
Children	2.56	0.83	2.57	0.71	-0.10	.92
Other family	2.60	0.78	2.52	0.77	0.79	.43
Friends	2.61	0.87	2.53	0.72	0.76	.45
Pets	2.56	0.80	2.56	0.75	-0.08	.94
Landscapes	2.57	0.72	2.55	0.81	0.15	.88
Art	2.53	0.76	2.66	0.83	-1.13	.26
Food	2.56	0.77	2.56	0.79	-0.00	.10

Note. Neuroticism means and standard deviations across photo subjects are based upon whether or not each subject was reported as present. Total sample size = 247.

Table 3.

Narcissism Tests of Means for each Photo Subject

Subject of photos	Subject Not Present		Subject Present		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Self	2.65	1.96	3.02	1.79	-1.50	.14
Significant other	3.09	1.99	2.75	1.72	1.44	.15
Children	2.70	1.53	3.13	2.13	-1.83	.07
Other family	3.02	1.89	2.79	1.80	0.98	.33
Friends	2.80	1.80	2.96	1.88	-0.67	.50
Pets	3.22	1.88	2.61	1.78	2.61	.01
Landscapes	3.26	2.09	2.65	1.62	2.61	.01
Art	2.75	1.80	3.36	1.95	-2.25	.03
Food	2.92	1.92	2.88	1.75	0.19	.85

Note. Narcissism means and standard deviations across photo subjects are based upon whether or not each subject was reported as present. Total sample size = 247.

Table 4.

Extraversion Tests of Means for each Photo Subject

Subject of photos	Subject Not Present		Subject Present		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Self	2.83	0.76	3.01	0.70	-1.86	.06
Significant other	2.80	0.69	3.07	0.73	-2.87	<.01
Children	2.90	0.78	3.00	0.66	-1.16	.25
Other family	2.83	0.73	3.07	0.70	-2.59	.01
Friends	2.71	0.79	3.08	0.65	-4.01	<.01
Pets	2.93	0.77	2.96	0.68	-0.34	.74
Landscapes	2.84	0.70	3.02	0.73	-1.96	.05
Art	2.89	0.74	3.11	0.64	-2.09	.04
Food	2.91	0.75	3.01	0.68	-1.14	.26

Note. Extraversion means and standard deviations across photo subjects are based upon whether or not each subject was reported as present. Total sample size = 247.

Table 5.

Agreeableness Tests of Means for each Photo Subject

Subject of photos	Subject Not Present		Subject Present		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Self	3.80	0.67	3.63	0.64	1.87	.06
Significant other	3.67	0.64	3.70	0.67	-0.33	.74
Children	3.75	0.63	3.62	0.67	1.60	.11
Other family	3.60	0.66	3.78	0.63	-2.11	.04
Friends	3.72	0.65	3.67	0.66	0.50	.62
Pets	3.66	0.67	3.72	0.63	-0.75	.45
Landscapes	3.58	0.63	3.76	0.66	-2.15	.03
Art	3.69	0.66	3.69	0.62	-0.03	.98
Food	3.69	0.64	3.69	0.68	0.05	.96

Note. Agreeableness means and standard deviations across photo subjects are based upon

whether or not each subject was reported as present. Total sample size = 247.

Table 6.

Conscientiousness Tests of Means for each Photo Subject

Subject of photos	Subject Not Present		Subject Present		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Self	3.73	0.70	3.61	0.69	1.30	.20
Significant other	3.58	0.69	3.71	0.69	-1.47	.14
Children	3.61	0.76	3.69	0.61	-0.85	.40
Other family	3.61	0.69	3.70	0.70	-1.03	.30
Friends	3.61	0.73	3.68	0.67	-0.75	.46
Pets	3.59	0.70	3.71	0.69	-1.30	.19
Landscapes	3.61	0.68	3.68	0.70	-0.81	.42
Art	3.67	0.69	3.60	0.70	0.72	.47
Food	3.68	0.68	3.60	0.71	0.96	.34

Note. Conscientiousness means and standard deviations across photo subjects are based upon

whether or not each subject was reported as present. Total sample size = 247.

Table 7.

Intellect Tests of Means for each Photo Subject

Subject of photos	Subject Not Present		Subject Present		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Self	3.68	0.68	3.56	0.67	1.30	.20
Significant other	3.51	0.70	3.68	0.64	-1.95	.05
Children	3.58	0.69	3.62	0.66	-0.49	.63
Other family	3.55	0.64	3.65	0.71	-1.12	.27
Friends	3.57	0.72	3.62	0.65	-0.58	.57
Pets	3.57	0.70	3.63	0.65	-0.68	.50
Landscapes	3.52	0.68	3.66	0.67	-1.67	.10
Art	3.62	0.68	3.53	0.67	0.94	.35
Food	3.61	0.64	3.58	0.73	0.29	.77

Note. Intellect means and standard deviations across photo subjects are based upon whether or not each subject was reported as present. Total sample size = 247.

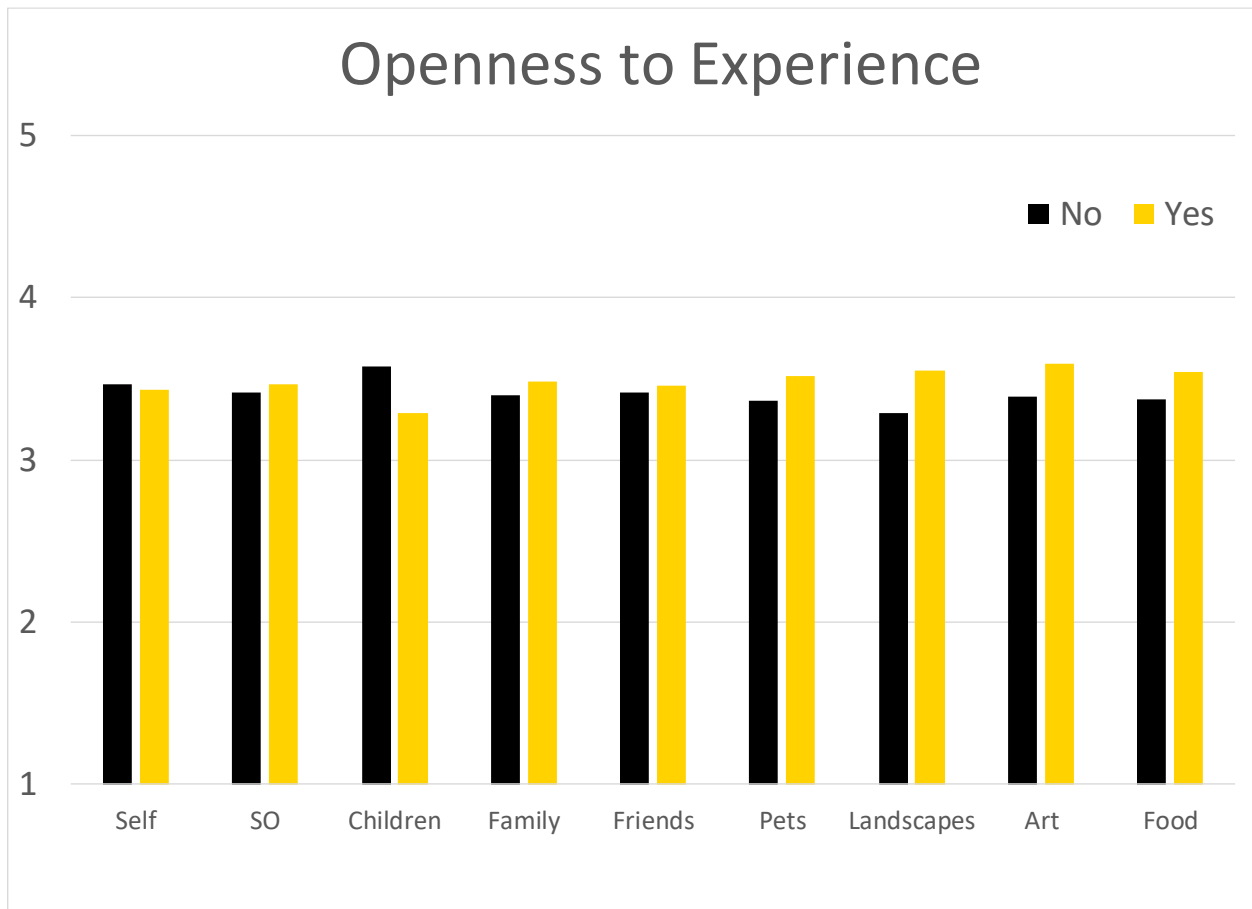


Figure 1. Means for openness to experience across photo subjects are based upon whether or not each subject was reported as present. Scale ranges from 1 to 5 where higher values indicate higher mean levels of the trait. Total sample size = 247.

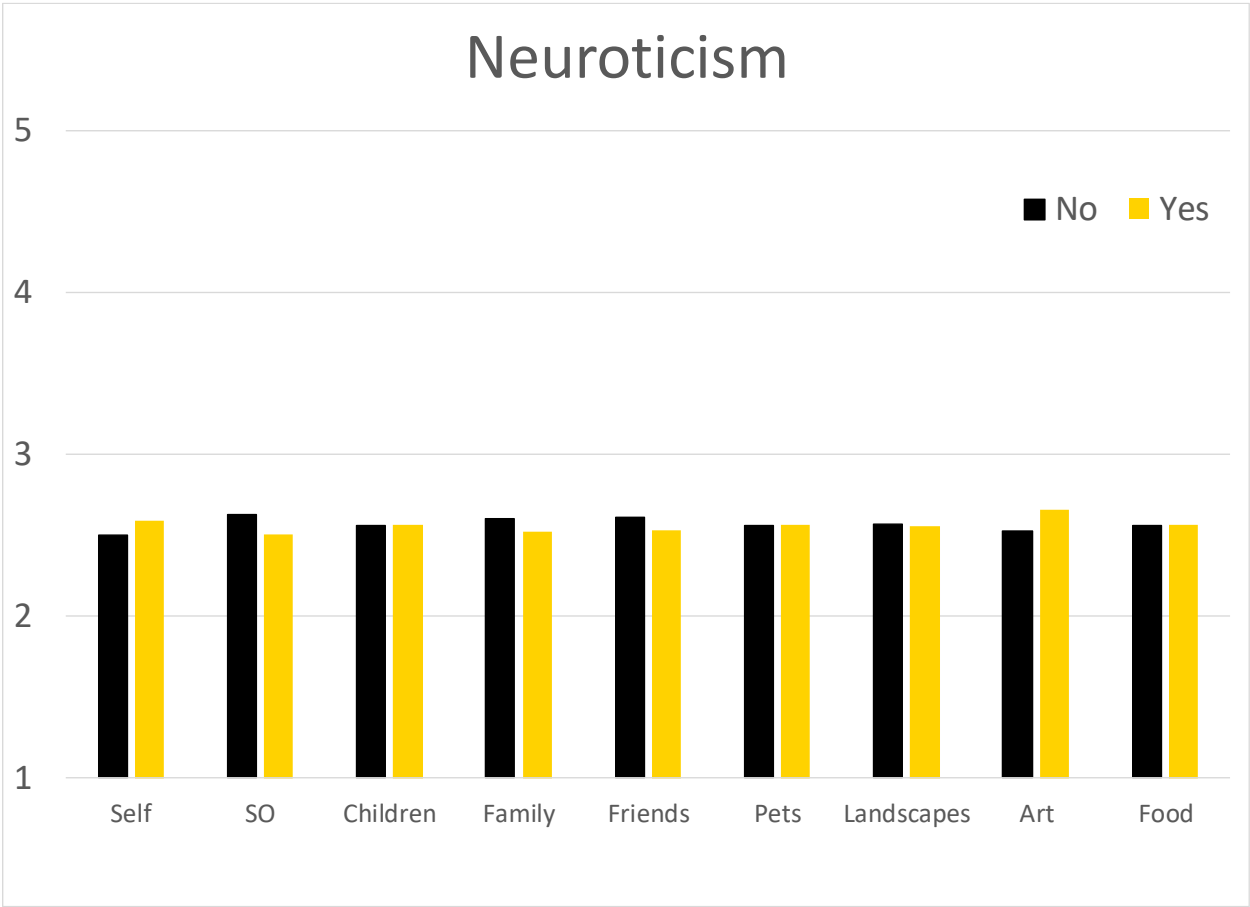


Figure 2. Means for neuroticism across photo subjects are based upon whether or not each subject was reported as present. Scale ranges from 1 to 5 where higher values indicate higher mean levels of the trait. Total sample size = 247.

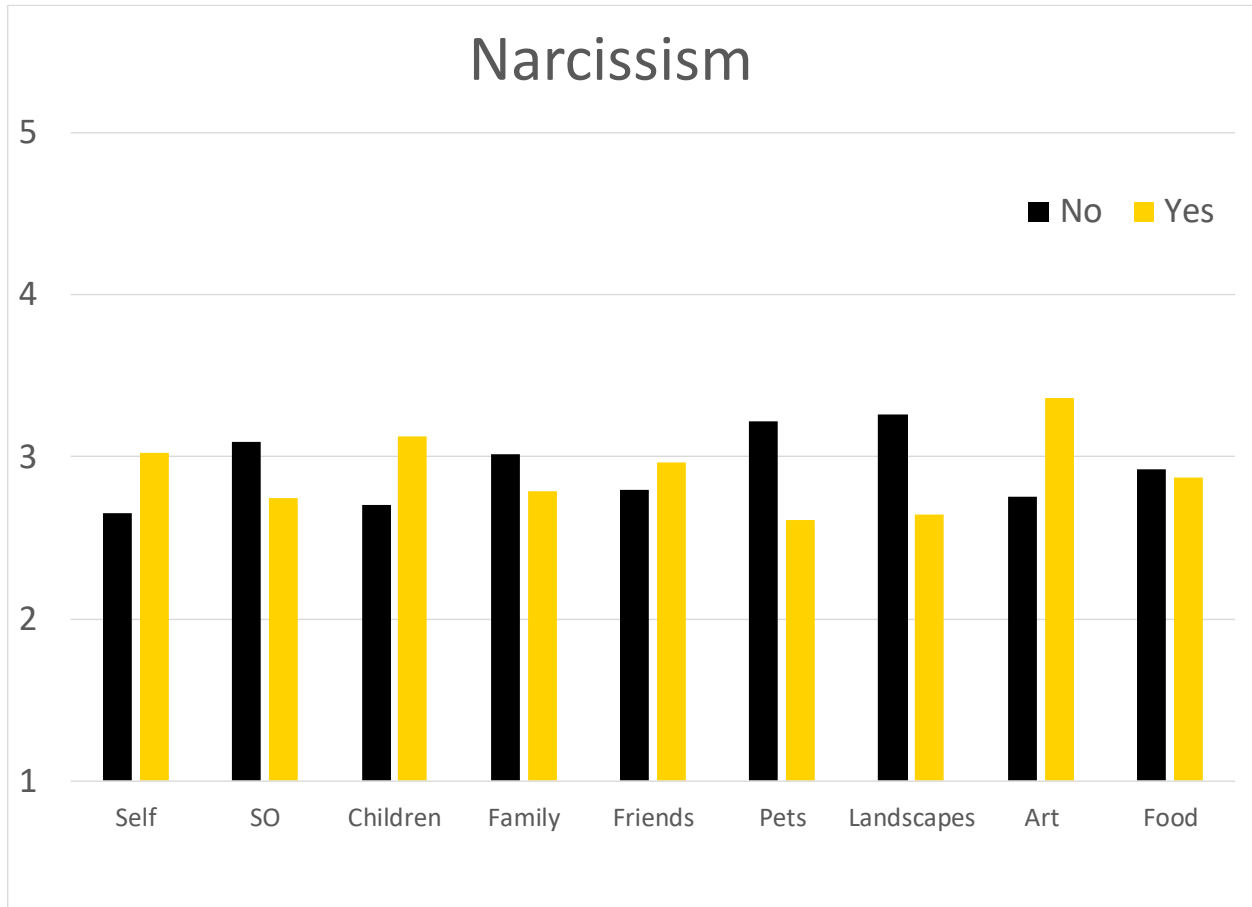


Figure 3. Means for narcissism across photo subjects are based upon whether or not each subject was reported as present. Scale ranges from 1 to 5 where higher values indicate higher mean levels of the trait. Total sample size = 247.

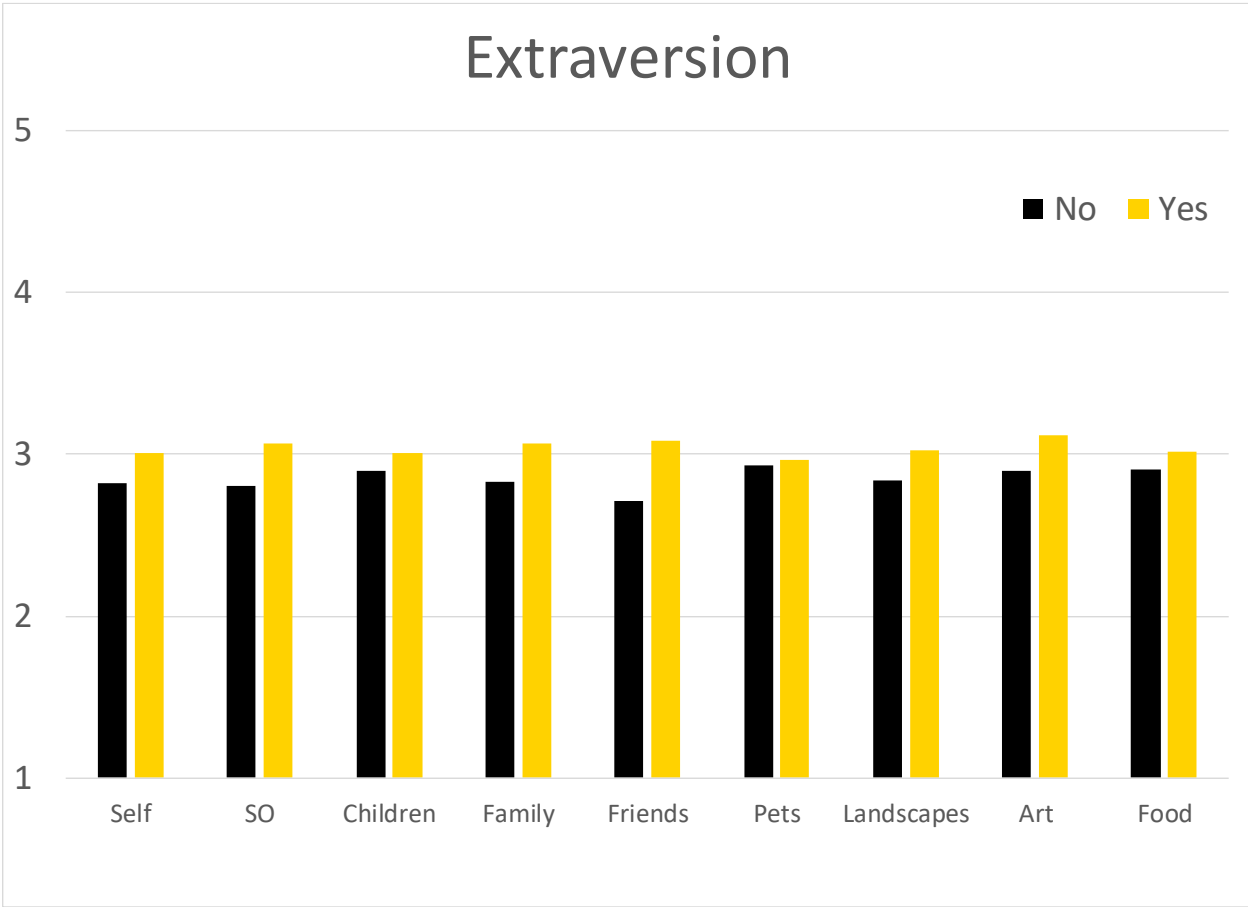


Figure 4. Means for extraversion across photo subjects are based upon whether or not each subject was reported as present. Scale ranges from 1 to 5 where higher values indicate higher mean levels of the trait. Total sample size = 247.

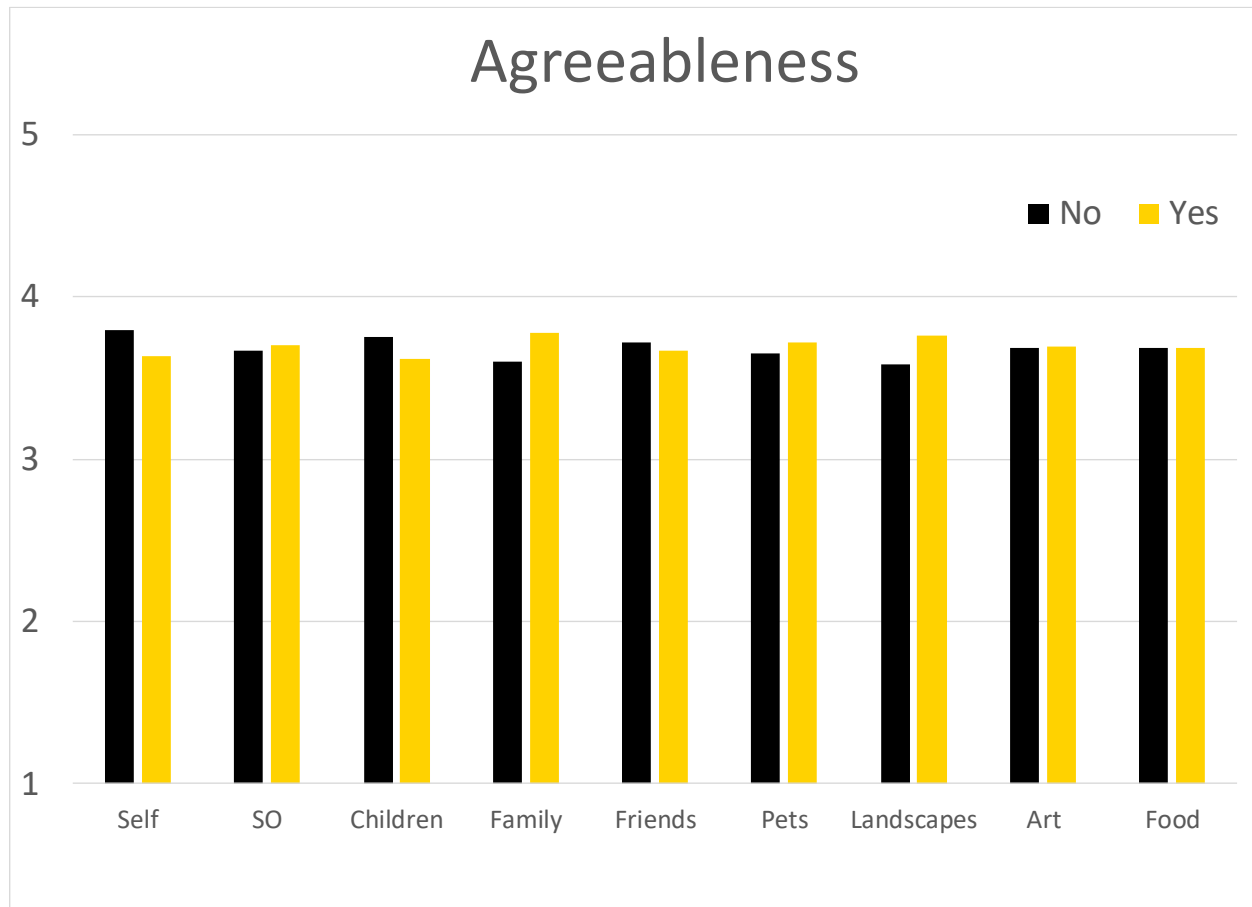


Figure 5. Means for agreeableness across photo subjects are based upon whether or not each subject was reported as present. Scale ranges from 1 to 5 where higher values indicate higher mean levels of the trait. Total sample size = 247.

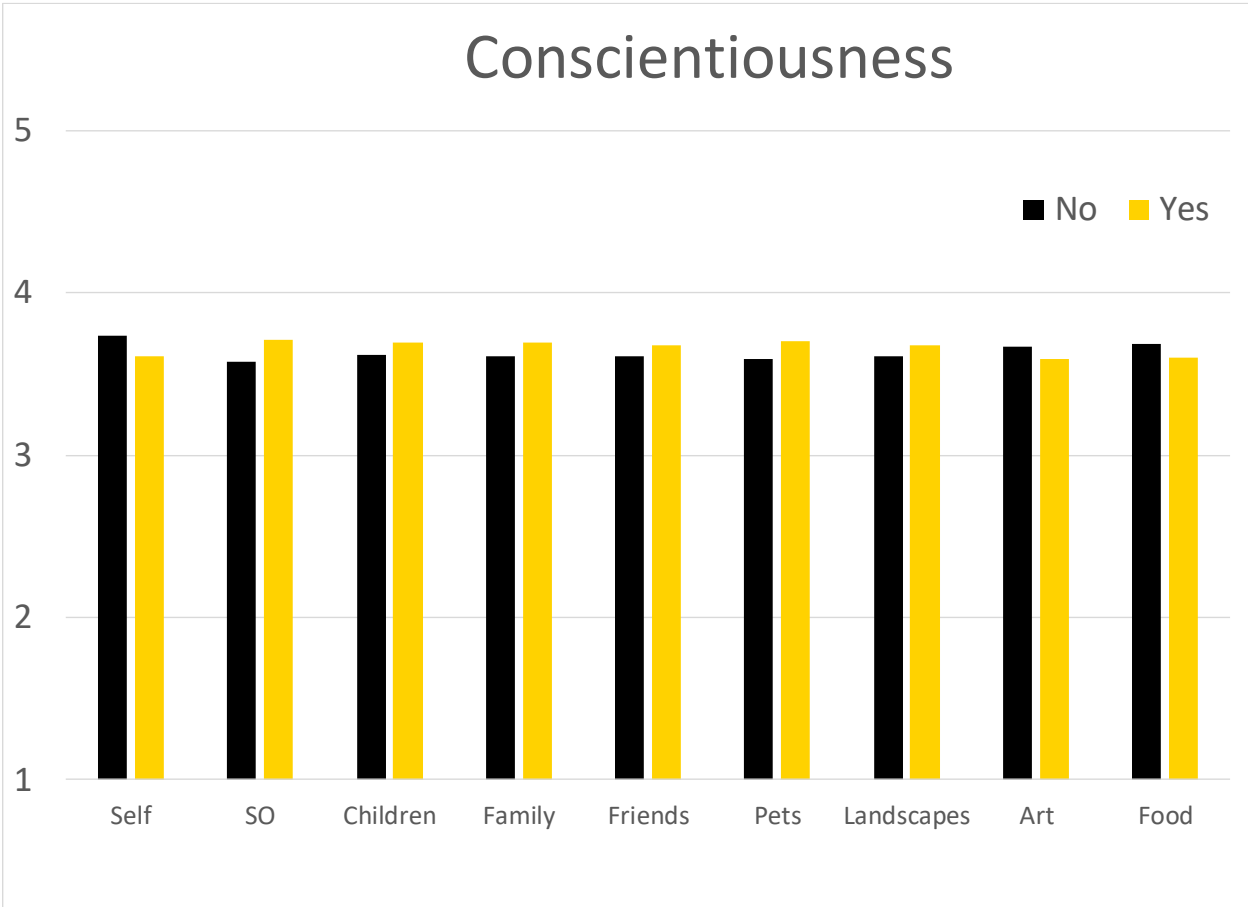


Figure 6. Means for conscientiousness across photo subjects are based upon whether or not each subject was reported as present. Scale ranges from 1 to 5 where higher values indicate higher mean levels of the trait. Total sample size = 247.

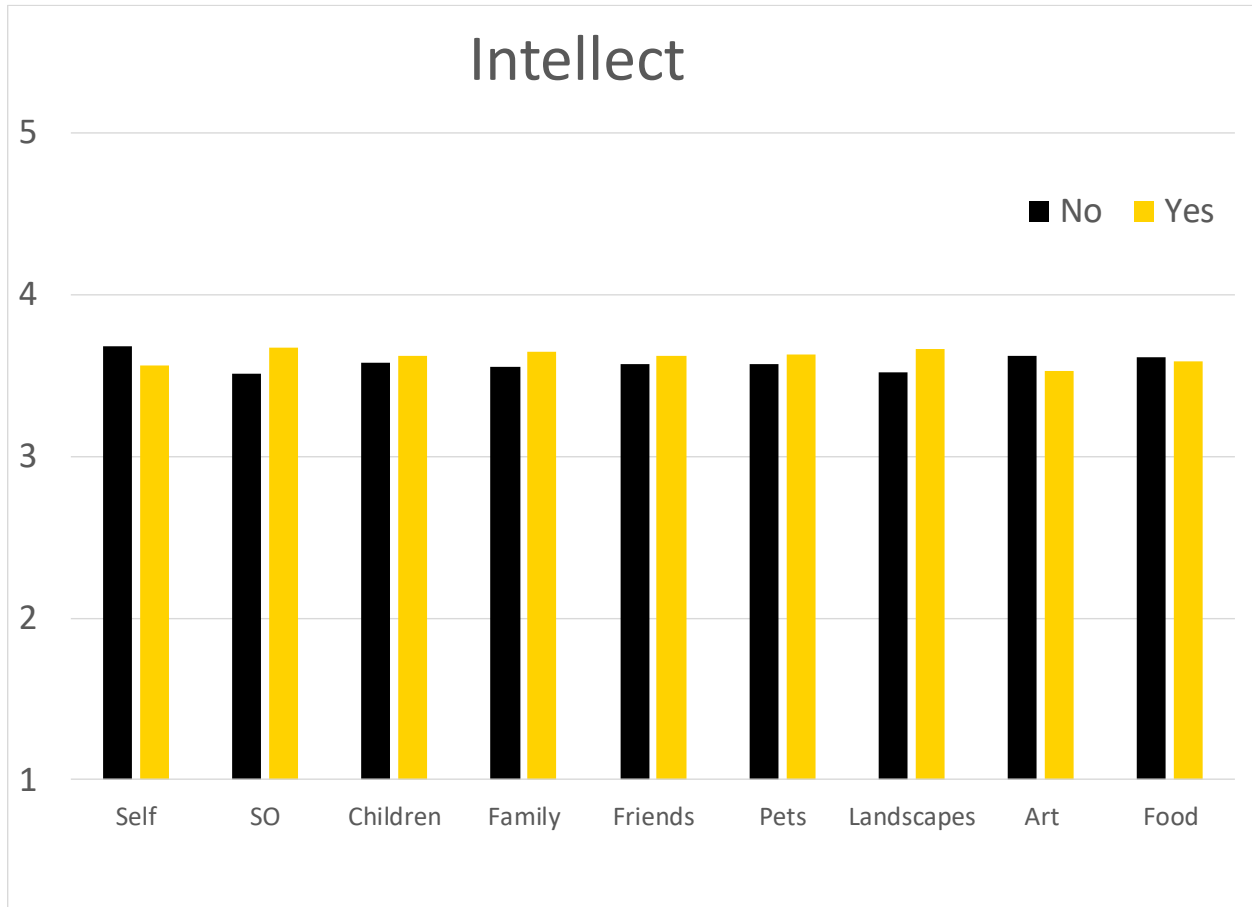


Figure 7. Means for intellect across photo subjects are based upon whether or not each subject was reported as present. Scale ranges from 1 to 5 where higher values indicate higher mean levels of the trait. Total sample size = 247.