

FACEBOOK AND PERSONALITY:
WHAT DO STATUS UPDATES REALLY COMMUNICATE?

By

MARGARET MARY JARVIS

A Thesis Submitted to The Honors College
In Partial Fulfillment of the Bachelors degree
With Honors in
Psychology

THE UNIVERSITY OF ARIZONA

April 2010

Approved by:

Dr. Matthias Mehl
Department of Psychology

Abstract

Facebook is a social networking site used by many people. A popular feature of Facebook is *status updates*; which are spontaneous, momentary “mini-blogs” used to describe thoughts, feelings, and behaviors. Past research (Back, et. al, 2010) suggests that people can make fairly accurate first impressions about someone’s personality based on Facebook. This suggests that Facebook profiles convey information about personality and we argue that status updates communicate information about psychological well-being. The purpose of the study is to look at how well judges can detect personality traits and depression based on Facebook pages. 126 participants saved three months of retrospective activity from their Facebook pages and completed the Big Five Inventory and the Beck Depression Inventory. Five judges made ratings of personality and depression from the pages. The results revealed that judges gauged personality and depression with a significant degree of accuracy. Evidence for depressive symptomology in status updates was found - with trait impression management moderating the findings. This study has implications for other people (e.g. friends, counselors) being able to recognize depression through status updates and make accurate first impressions about their personality through Facebook.

Social networking websites, such as Facebook, allow people to inform others of the little things that happen throughout their day, while keeping up-to-date with groups of friends. For example, Facebook allows users to “write” on someone’s wall, send an email message, and post pictures. Among college students, Facebook is highly accessible and widely used. In fact, 98% of University of Arizona freshmen taking introduction to psychology have Facebook accounts and 47% of the users log onto the site multiple times a day (U of A Introduction to Psychology subject pool, 2009). People use Facebook pages to learn more about new friends, classmates or future roommates, so the validity of the information portrayed is essential in order to create accurate first impressions. Specifically, we want to examine if Facebook profiles help people to form accurate first impressions. Thus, the first aim of the study is to examine the extent to which others can accurately perceive a person’s personality traits based solely on their Facebook page.

In addition to examining broad personality traits, we wanted to examine how well other people can detect sub-clinical depression from Facebook pages. In February 2009, the New York Post reported a story about an aspiring model who committed suicide using his status updates as a suicide note, and it was later revealed that he was severely depressed. His suicide note was left in the form of a status update saying, “born in San Francisco, became a shooting star over everywhere, and ended his life in Brooklyn.” From looking further into his previous status updates, there were several updates depicting depressive thoughts and feelings that lead up to his suicide, saying things such as “everything here sucks.” This particular incidence portrays how accurate social networking sites may be in portraying mental health. The second aim of the study is to examine the degree to which people can detect depression from Facebook pages.

Facebook pages are rich in information and we wanted to examine how the information on these profiles affects the accuracy of first impressions. In some cases, it is possible that

information will helpfully contribute to accurate judgments, while in other cases it might hinder accurate judgments. Thus, the third aim of the study is to examine which information on the pages (e.g. number of friends, number of photo albums) is related to accurate judgments.

In addition to being very content-rich, Facebook is a public social networking site and open to everyone online. As a result, it might influence what information and pictures people choose to post. For example, there might be differences among people who choose to openly post things about themselves and those who highly monitor what they post about themselves. In order to examine how this affects the level of accuracy, the fourth aim of the study will examine an individual difference moderator which captures the degree to which a person censors information about themselves to other people.

Using Social Networking Sites to Form First Impressions

People form first impressions using information from everyday environments. Recent meta-analytic evidence suggests these first impressions usually turn out to be fairly accurate (Holleran & Mehl, 2010). For example, using computer mediated communication is one common method in forming first impressions. Past research examining the accuracy of personality impressions based on personal websites found that people are generally able to judge personality traits quite well, especially the traits extraversion and openness to experience (Marcus, Machilek & Schutz, 2006; Vazire & Gosling, 2004). Web pages contain a vast amount of information, but even just knowing someone's screen name or email address can be used to form an accurate first impression. A study looking at gauging personality using only email addresses found that lay observers were able to make accurate judgments with some degree of validity for four of the five Big 5 personality traits -

neuroticism, openness to experience, agreeableness, and conscientiousness, but not for extraversion (Back, Schmukle & Egloff, 2008).

The recent popularity of social networking sites makes this medium a logical next step in assessing first impressions from computer mediated communication. Previous research examining first impressions based on social networking sites, (e.g. Facebook), found that people can form fairly accurate first impressions, that is, strangers' perceptions of personality traits map well onto self perceptions of personality (Back, Stopfer, Vazire, Gaddis, Schmukle, Egloff & Gossling, 2010). One of the newest, and most popular, features of Facebook are status updates where people can post information multiple times a day about happenings in their life, as well as keep up to date with friends (e.g. "heading to the gym to workout," "so excited for spring break," "stressed out from all of the tests I have this week"). In essence, status updates are "mini blogs" where people express their momentary thoughts, feelings and behaviors.

One recent study on first impressions based on Facebook pages found that Extraversion, or the degree to which a person is sociable or outgoing, is the easiest trait to judge (Back et. al, 2010). The purpose of Facebook is to engage in social interactions and we expect that a person's degree of Extraversion will manifest through social interactions. It is possible that people who are more extraverted will be more active users of Facebook (e.g. have more friends, engage in a greater number of written interactions) and update their status primarily to reflect social aspects. Therefore, we hypothesize that people will be most accurate in assessing someone's sociability.

Next, past research found that openness to experience was also easy to detect through Facebook pages (Back et. al, 2010). Pictures on Facebook and status updates can

reflect a person's willingness to try new things, resulting in accurate impressions of openness to experience. For instance, a person high on this trait may have pictures of traveling abroad or even hiking a new mountain. Therefore, we hypothesize that people will also be highly accurate in assessing someone's openness to experience based on their Facebook page.

Past research indicates that conscientiousness, or the degree of carefulness and thoroughness, is the third easiest trait to detect using Facebook (Back et. al, 2010). We predict that people will be able to gauge conscientiousness, but not as easy as extraversion and openness to experience. We think that a highly conscientious person might write more about their daily goals and projects (i.e. what they need to do and get done) as well as have fewer misspellings, which will allow for accurate ratings of conscientiousness. Therefore, we hypothesize that people will be moderately accurate in assessing someone's level of conscientiousness.

Past research demonstrates that agreeableness is not an easy trait to detect using Facebook. (Back et. al, 2010). Status updates and wall posts reflect social interactions among people, therefore we can see those who get along well with their Facebook friends. This reflects the personality trait agreeableness, which is the tendency to be pleasant and accommodating in social situations, which past research indicates is harder than other traits to detect. Therefore, we hypothesize that people will have low accuracy when making predictions of agreeableness.

Facebook pages, particularly status updates, express thoughts and feelings, both positive and negative. Past research has demonstrated that neuroticism, or a tendency to experience negative emotional states, is the hardest personality trait to detect (Back, et.al,

2010). Status updates may make it easier to detect this trait by looking at how people update their status because a neurotic individual might express their mood in more extreme ways and use more and more extreme negative emotion words in their status updates. However, we hypothesize that neuroticism will be the hardest trait to detect based on someone's Facebook profile.

While past research has looked primarily at judgments of the Big 5 personality traits and social networking sites, they have not looked at other traits outside of the Big 5. Facebook is a place to connect with other people, and since according to Baumeister & Leary (1995), the need to belong and feel connected to others is only exceeded by survival needs, the concept of need to belong is important to explore in Facebook. A study looking at the personality trait, Need to Belong, found that individuals who are high in the need to belong show a heightened level of interpersonal sensitivity after a rejection experience compared to those who are low in the need to belong (Pickett, Gardner & Knowles, 2004). Facebook users may update their status to connect with friends and feel belonging among their online social network. Therefore, we hypothesize that it will be easier for raters to judge whether or not the participant is high in the need to belong just by reading their status updates and seeing how participants verbalize the little things that happen to them each day.

Certain aspects on Facebook might help us recognize whether or not a person is narcissistic. Another study found that the personality trait narcissism was detectable by others through social networking sites (Buffardi & Campbell, 2008). For instance, narcissistic people might post several pictures of themselves on their page or their status updates may be self-focused as opposed to updating information, resulting in easier

detection of narcissism (Naaman, Boase & Lai, 2010). Therefore, we predict that people will be able to perceive narcissism through Facebook pages. In the current study, we measured several other traits, such as satisfaction with life, and positive and negative affect, and predict that Facebook pages hold enough pertinent information for accurate perceptions of these traits. There has not been a lot of other research done on if these concepts are present in social networking sites, so we wanted to explore if they were detectable.

In sum, we want to examine the accuracy of personality traits using Facebook pages. Beyond examining traits, we wanted to examine how Facebook pages reflected mental health – specifically subclinical depression. We argue that Facebook pages contain elements (e.g. thoughts, feelings, behaviors, and social interactions) which display information related to signs of depression. That is, we want to then focus on how well others can detect depression using only Facebook pages, and the degree to which depressive symptomology is present in status updates.

Detecting Depression From Social Networking Sites

Depression is a serious medical condition that can significantly interfere with a person's ability to function in daily life. This is often manifested in thoughts, feelings and behaviors (Coyne, 1976). According to the DSM-IV, general symptoms of depression include feelings of sadness, inability to think or concentrate, feelings of worthlessness, insomnia/hypersomnia, increase or decrease in appetite, fatigue/loss of energy, recurrent thoughts of death and loss of interest or pleasure in activities. Depression is highly prevalent among college students. According to the National College Health Assessment in Spring 2006, 44% of college students reported at some point over that year feeling so

depressed it was difficult to function, demonstrating the pervasiveness of depression among the college population. Most college students have a Facebook page, so Facebook might be an important tool in detecting depression.

However, depression is a highly evaluative trait (e.g. people don't readily admit they are depressed to others; John & Robbins, 1993). This suggests there a social stigma associated with being depressed. Due to this, depression often goes unnoticed and sadly more often than not, friends and close acquaintances of people who commit suicide, had no idea the person was even depressed. This is why being able to detect depression in others is vital in order to provide them with the help and support they need.

Since depression is prevalent among college students, and college students are avid Facebook users, it would be worth exploring if people are more open about this in social networking sites. People often think that depression is easy to detect in others, when in reality, it can be very difficult to detect. According to a study that acoustically detected behavior across three days, depressed people act similar to non-depressed people, making it a hard trait to detect (Mehl, 2006). Judges listened to 3 days of sound files and couldn't accurately detect whether someone was depressed or not. For example, depressed people socialized just as much as non-depressed people. Also, people in general spent time alone, not talking or laughing for various reasons other than being depressed, making it hard for judges to detect who was depressed or not. Another study looking at daily diaries of depressed and non depressed individuals, both groups were just as socially active in terms of number of social interactions, time spent in social contact, and number of different people with whom they interacted each day. However, researchers did find that depressed people have a worse subjective response to interactions

compared to non-depressed people (e.g. they found their social interactions to be less enjoyable compared to non depressed people; Nezelek et al., 2000).

Depression has been both hard and easy to detect in different studies due to the nature of each study. Depression is hard to detect in behavioral studies, such as (Mehl 2006) assessing depression in daily life, because it is not easily seen through social interactions. This might be because interactions with others are open to scrutiny and evaluation, so depressed people do not want others to pick up on the fact that they struggle with depression. A study looking at the accuracy of detecting depression in personal diaries versus online blogs, researchers found that depression is easy to detect in both forms of written expression (Rodriguez, Holleran & Mehl, 2010). This shows that people still express themselves in an online blog the way they would in a personal diary, suggesting that both forms offer a privacy component, giving people the opportunity to disclose what is really on their mind. While people were able to detect depression using both forms of written self-descriptors, there was a difference in how people conveyed their depression in writing. Depressed participants made more sleep-related references (e.g., “tired”, “exhausted”) and used more profanity in their online self-descriptions and used more cognitive words (e.g. sadness, metaphysical references) in their personal diaries compared to non depressed participants (Rodriguez et al. 2009). This study suggests that depression is conveyed better in personal diaries and blogs because of the privacy nature of writing an entry. People often do not fear being judged when they do not expect others to read and analyze their inner most thoughts and feelings, even when posting in an online format.

Facebook is a form of online communication used by many people and may be a medium for eliciting depression. Facebook allows people to post pictures, information and status updates to both a public (online world) or private (select set of friends) setting. People are behind a computer when they update their information or status, which elicits a sense of private disclosure. Status updates are also momentary and done without much thought, which is why we think they may be a valid cue in detecting depression. The private nature of Facebook allows people to disclose their innermost thought and feelings, particularly through updating their status, making us believe that depression will be present and detectable.

Given that people use Facebook to stay up to date with friends, it is important to be aware of any signs of negative thoughts, feelings or behaviors. Depression might be easier to detect on Facebook, rather than through social interactions, because by posting a status update, a person is not necessarily directing their thoughts, feelings or behaviors to another person, so they may feel more comfortable expressing how they are really feeling. Also, since status updates are considered “mini blogs,” people may be more apt to express what is really going on in their head compared to how they portray their feelings through face-to-face interactions. Therefore, finally, and maybe most importantly, we are interested in how accurate people are in “reading” levels of (subclinical) depression from Facebook pages, particularly using status updates. Also, in terms of depressive symptomology, such as feelings of sadness, inability to concentrate, or loss of energy, it is thought that experiential symptoms (e.g. feelings of sadness, feelings of worthlessness) will be easier detect compared to behavioral symptoms (e.g. insomnia, lack of energy). This may be due to the nature of status updates generally portraying more thoughts and feelings.

Impression Management as an Individual Difference Moderator of Accuracy

Impression management is an individual difference variable that describes how much people censor information about themselves from others. People high on impression management generally highly censor information about themselves from others while people low on impression management do not censor information very much about themselves to others. Impression management is defined as “the process of regulating public self-presentation” (Paulhus & Trapnell, p.492, 2008). Consequently, if the context is private, there is no need for impression management and people are often honest with themselves, even about issues that may be evaluative, such as depression. Past studies have determined that the presence of an audience alters people’s behavior in several ways (Buss, 1980; Duval & Wicklund, 1972), suggesting why people may try to manage the way they come across to others. Impression management can also be considered a form of self-presentation used in an attempt to please a particular audience. People engage in impression management for a variety of reasons, such as desiring to be liked or to gain approval (Baumeister, 1982).

People high on this trait most likely highly censor what information they put on their Facebook page as well as what they report in their status updates, while people low on this trait probably do not censor how they portray information about themselves. For instance, someone low in impression management may freely post pictures of themselves out drinking over the weekend for all of their Facebook friends to see, while people high in impression management might limit their tagged photos for their viewing only, restricting all of their friends from seeing them. With regards to status updates, someone low in impression management most likely posts every happy and irritating thought or experience throughout their day without thinking much about how others will perceive it, while someone high in impression management may post

about what they are doing and how they are feeling, being consciously aware that others will see it and may judge them.

As a result, people low in impression management are more likely to be accurately perceived on personality traits and depression compared to people high in impression management due to their lack of censoring information about themselves. Certain traits, such as extraversion and agreeableness, are not socially undesirable traits, therefore people do not generally censor their sociability or ability to get along with others (John & Robbins, 1992). Thus, it is hypothesized that there will be no difference between accurately detecting traits such as extraversion or agreeableness for people low and high in impression management. There are certain traits, such as neuroticism and depression that are highly evaluative traits which may lead people to censor these traits. This means that people do not easily admit to others that they are depressed or neurotic. Therefore, it is hypothesized that people will be able to detect neuroticism and depression better in people low in impression management compared to people high in impression management.

We are curious if impression management will play a role in moderating the effects of depressive symptomology in status updates and self-reported subclinical levels of depression. People that do not censor information about themselves in general might also be less likely to hide depressive thoughts when they are actually depressed. Therefore, it is hypothesized that there will be a stronger relationship between depressive symptomology in the status updates and self-reported subclinical levels of depression for people low in impression management compared to people high in impression management.

Methods

Overview

This study consisted of three phases. In the first phase, participants completed personality questionnaires and saved retrospective activity from their Facebook profiles. In the second phase, raters made personality judgments after viewing each Facebook profile. In the third phase, the Facebook profiles were coded for different descriptive information and depressive symptomology. (e.g. number of status updates, number of friends, feelings of sadness, feelings sick).

Participants

122 undergraduate students from the University of Arizona served as target participants in this study. As compensation for participating, they received 1 credit towards their final grade. Of the 122 participants, 81 (66.4%) were female. The participants ranged in ages from 18-24 ($M=18.80$, $SD=.98$). Each participant indicated their race with 83 (68.0%) identifying as White, 16 (13.1%) as Hispanic, 11 (9.0%) as Asian American, 6 (4.9%) as black, 4 (3.3%) as other, and 2 (1.6%) as Pacific Islander. There were 3 female raters and 2 male raters. The raters were undergraduate research assistants in the lab.

Phase One: Assessing Target Personality and Collecting Facebook pages

In the first part of the study, participants completed several online personality questionnaires. The survey consisted of the Big Five Personality Inventory (BFI; John & Srivastava, 1999), several single item trait-adjective measures of personality (e.g., self-esteem, athleticism, and creativity) and the Beck Depression Inventory (BDI; Beck, Ward, & Mendelson, 1961). In addition, participants completed the Positive Affect Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988), to assess mood ($\alpha = .90$ and $.80$ respectively) the Need to

Belong Scale measuring desire for acceptance and belongingness, ($\alpha = .80$) (Leary, Kelly, Cottrell, & Schreindorfer, 2005), Balanced Inventory of Desired Responding measuring impression management and self deception, ($\alpha = .71$ and $.69$ respectively) (BIDR, Paulhus, 1988, includes both the Impression Management and Self Deception scales), the Narcissistic Personality Inventory measuring narcissism, $\alpha = .78$ (NPI, Raskin & Terry, 1988), and the Satisfaction with Life Scale measuring global life satisfaction, $\alpha = .85$ (SWL, Diener, Emmons, Larsen & Griffin, 1985). The internal reliabilities of the BFI for Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Openness to Experience were $.87$, $.78$, $.80$, $.78$ and $.75$ respectively. The mean of the entire sample on the BDI was 9.16 ($SD = 6.82$, range: $0-31$). Using a BDI cut-off score of 13 and greater, 22.1% of our sample were mildly depressed and above (Lasa, Ayuso-Mateos, Vázquez-Barquero, Diez-Manrique, & Dowrick, YEAR). After completing the personality scales, participants were instructed on how to save their Facebook profile on a secure server in the lab. Three months of activity on the wall, information photos and boxes pages prior to participating in the study were saved. Table 10 displays the intercorrelations among the Big 5 personality traits, narcissism, depression and impression management.

Phase Two: Ratings of Target Personality

Raters viewed all 4 sections of each participant's Facebook profile to make an assessment of sub-clinical depression and personality. A typical Facebook profile consists of a "wall" which shows comments from friends (e.g. "hey are you going to the football game this weekend?") and instances of when the participant writes on a friend's wall or posts photos (e.g. "Jennifer wrote on Sara's wall" or "Ryan was tagged in a photo album," also showing a few of the photos he was tagged in). The wall is also where the status updates appear. Status updates are momentary

“mini-blogs” that express thoughts, feelings and behaviors (e.g. Chris is really excited to see his family this weekend!”). Another part of the profile is the “info” page where people can indicate general demographic information such as gender, relationship status, hometown, level of education, place of employment, political and religious beliefs. The profile also has sections where the person can write about their interests, activities, favorite movies, music, books and an about me section. The “about me” section is where people can write any additional information that describes themselves. The third page of the profile is “boxes” where a person can display any applications they choose to add to their profile. Applications range from bumper stickers a person can receive and send to friends, to top friends where people can indicate who their favorite friends are. Additionally, profiles have a “photos” section where people can create and upload photo albums and “tag” friends in the photos. Tagging a picture results in that picture showing up in the respective person’s profile as well as the person’s profile who uploaded it and is often used as a convenient way to share photos with friends.

After raters examined each all four sections of the profiles, they rated targets’ Big 5 personality traits using the BFI and several one-item measures of self-esteem, happiness, political orientation, athletic ability, wealth, likeableness, intelligence, attractiveness, informality, creativity, loneliness, narcissism, need to belong, and satisfaction with life. Estimates of personality characteristics were based on a series of questions measuring the big five personality traits. One question for example was “I see the target as someone who is outgoing” indicating responses on a one (strongly disagree) to seven (strongly agree) point scale. Estimates of depression were based on a single, global assessment of depression of each target which read “I see the target as someone who is depressed” based on a one (strongly disagree) to seven (strongly agree) point scale.

Phase Three: Ratings of Objective and Subjective Aspects of Facebook Pages

A coding system was derived for both descriptive information and depressive symptomology on the Facebook profiles. The descriptive information coding was done by a single rater, while the depressive symptomology coding in the status updates was done by two independent coders. Using the lens model, “cue utilization” refers to the relationship between the cue that can be observed (e.g., number of friends) and the judges’ perceptions of where the target falls on the construct (i.e., extraversion). “Cue validity” refers to the relationship between the cue that can be observed (e.g., number of friends) and the targets’ actual self-reported position on the given trait or construct (e.g., self-reported level of extraversion). According to the lens model, accuracy occurs when judges correctly utilize valid cues and ignore invalid cues to the targets’ given trait or construct of interest (Brunswick, 1986).

Facebook Profile Coding

Each Facebook profile was coded for the number of friends ($M=530.21$; $SD=365.26$; ranging from 0 to 2,084), number of status updates ($M=71.51$; $SD=78.34$; ranging from 0 to 441), number of comments from Facebook friends ($M=168.23$; $SD=140.31$; ranging from 0 to 868), number of photo albums ($M=13$; $SD=16.44$; ranging from 0 to 109) and number of tagged photos ($M=435.56$; $SD=429.96$; ranging from 0 to 2,117).

Depressive Symptomology Coding

Two independent coders also coded the status updates for 8 indicators of depressive symptomology based on the criteria determined by the DSM IV (e.g. sadness, loss of interest, fatigue, feeling sick; overall $\alpha=.94$). Examples of status updates containing depressive symptomology include “I can’t concentrate on this assignment,” “I am so bored,” “Not sure what to do.” To examine cognitive and behavioral aspects of depression, two composite categories

were created. The symptoms that fell into the experiential category ($\alpha = .63$) were feeling sad, loss of interest in activities, feelings of worthlessness, inability to concentrate, and thoughts of death, while symptoms of increase/decrease in appetite, insomnia/hypersomnia, and feeling sick fell into the behavioral category ($\alpha = .66$).

Results

How well are personality traits perceived from Facebook profiles?

In reference to Table 1, the level of consensus was .78 across all personality traits. Across all personality traits, the level of accuracy was .29 ($p = .00$). The level of accuracy was determined by correlating targets' self-reported personality traits with a composite of raters' judgments of personality. Accuracy varied among the personality traits. That is, the raters were much better at perceiving some traits and much worse at perceiving others. For instance, raters were good at detecting extraversion ($r = .48, p < .00$), agreeableness ($r = .36, p < .00$), and political orientation ($r = .65, p < .00$). On the other hand, raters were not as good at detecting likeability ($r = .02, p < .05$), self-rated intelligence ($r = .03, p > .05$) or negativity ($r = .05, p > .05$). Similar to past research, judges were good at detecting extraversion, however they were also good at detecting agreeableness, which past research suggests is a hard trait to detect. (Back et. al, 2010; Ames & Bianchi, 2008)

What information do perceivers use when making assessments of personality traits and what information on Facebook profiles are valid indicators of personality?

Next, we wanted to examine which information or cues raters use when making assessments of personality traits. We are going to focus on the Big Five personality traits and depression in particular. Past research has examined the accuracy and validity of perceptions of personality and depression (Back et. al, 2010, Rodriguez et. al, 2010) and we wanted to examine

which cues are related to these traits. In the right hand column of Table 2, the cue utilization correlations show which coded aspects of the Facebook profiles were related to raters' judgments of Extraversion. Interestingly, the number of friends a person had was often used as a cue for perceiving Extraversion ($r = .53, p < .01$) as well as the number of tagged photos ($r = .51, p < .01$). That is, the more friends and tagged photos a person had on their Facebook, the more extraverted they were rated. In Table 2 on the left hand side, the cue validity correlations are present for the personality trait extraversion. The numbers of friends a person had was related to their level of extraversion ($r = .38, p < .01$). That is, the more friends a person had, the more extraverted they rated themselves. The number of tagged photos a person had was also related to their level of extraversion ($r = .34, p < .01$). That is, the more tagged photos a person had, the more extraverted they were. For the personality trait extraversion, raters were using valid cues in making their perceptions.

The right hand column of Table 3 displays the cue utilization correlations for Agreeableness. These correlations indicate which cues the raters used when making perceptions of Agreeableness. The only cue that the raters used was the total number of photo albums ($r = .23, p = .01$). That is, the more photo albums a person had, the more Agreeable they were perceived. None of these cues were valid indicators of Agreeableness.

The right hand column of Table 4 displays the cue utilization correlations for Conscientiousness. Raters utilized the number of friends when judging their level of Conscientiousness ($r = -.23, p < .01$). That is, the fewer friends a person had, the more conscientious they were perceived. Also, raters utilized the number of tagged photos a person had when making their conscientious perceptions ($r = -.28, p < .01$). That is, the less tagged

photos a person had, the more conscientious they were perceived. None of these cues were valid indicators of Conscientiousness.

The right hand column of Table 5 displays the cue utilization correlations for Emotional Stability. Raters utilized the number of status updates a person had on their Facebook page in order to make perceptions of emotional stability ($r = -.61, p < .01$). That is, the less status updates a person had, the more emotionally stable they were perceived. However, none of these cues were valid indicators of Emotional Stability.

The right hand column of Table 6 displays the cue utilization correlations for Openness to Experience. The number of friends a person had on their Facebook page was utilized by raters in judging openness to experience ($r = -.36, p < .01$). The fewer friends a person had on their Facebook page, the higher on openness to experience they were perceived. Also, the total number of tagged photos was also utilized in perceiving Openness to Experience ($r = -.26, p < .01$) That is, the less tagged photos a person had, the higher on Openness to Experience they were perceived. None of these cues were valid indicators of Openness to Experience.

Status Updates and Depression

Next, we examined if status updates contain depressive symptoms and if this is related to the participants' self-reported subclinical levels of depression. We found that on average, participants had 4 (SD = 6.3) status updates that contained depressive symptoms (e.g. feeling sad, worthless, sick). Table 8 displays the correlations between depressive symptoms (e.g. feeling sad, worthless, sick) and self-reported subclinical depression. The number of status updates containing depressive symptoms was not significantly related to self-reported subclinical levels of depression ($r = .12, p = .19$), however status updates containing experiential symptoms

(feelings of sadness, inability to concentrate, loss of interest) was related ($r = .20, p < .05$). This was especially true for feelings of sadness ($r = .22, p < .05$).

The right hand column in Table 7 displays the cue utilization correlations for subclinical depression. Judges used the total number of status updates as an indicator of subclinical depression ($r = .32, p < .01$), such that the more status updates a person had, the more depressed they were perceived. Using the depressive symptoms coding, a greater number of status updates with themes of sadness was related to higher ratings of subclinical depression ($r = .47, p < .01$). Also using this coding scheme, a greater number of status updates with themes of loss of interest in activities was related to higher ratings of subclinical depression ($r = .46, p < .01$). The left hand column of table 7 displays the cue validity correlations for depression. Consistent with the cue used by the raters, feelings of sadness in status updates was positively related to subclinical levels of depression ($r = .22, p < .05$). That is, the more people included themes of sadness in their status updates, the greater their self-reported level of subclinical depression. These correlations indicate what cues raters used when making their perceptions of personality and depression. Some cues are valid, meaning that the raters were using related cues, while some cues were not related to the personality traits, throwing off the raters in their judgments.

Individual Difference Moderator-Impression Management

We wanted to investigate the influence of dispositional impression management on the level of accuracy, so we calculated the level of accuracy based on whether targets' scores were high or low on impression management (as determined by a median split). Accuracy was then analyzed by splitting the targets into two groups, low and high in impression management (median = 6). In reference to Table 8, raters achieved an accuracy correlation of .28 ($p = .00$) across all personality traits for participants low in impression management and an accuracy of

.23 ($p = .00$) across all personality traits for those high in impression management. This was not a significant difference among the correlations, however they differ descriptively in the predicted direction.

Again, the level of accuracy varied among the personality traits depending on if the targets were high or low in impression management. Raters were also better at detecting emotional stability for participants low in impression management ($r = .46, p < .05$) compared to participants high in impression management ($r = .03, p = .74$). Hotelling's t-tests (with Williams Modification) indicated that the pairs of correlations in both the low impression management group ($p = .05$) and high impression management group ($p = .74$) were significantly different from each other.

Depression is a highly evaluative trait (people do not readily admit that they are depressed to others) which makes it hard to detect during social interactions. Impression management may moderate the ability to gauge depression because people low in impression management do not censor information about themselves compared to people high in impression management who highly censor information about themselves. Therefore, it is thought that those who do not censor information about themselves (low in impression management) and are depressed, will not censor this information. As a result of this individual difference factor, raters were better at detecting depression for participants low in impression management ($r = .31, p < .05$), compared to participants high in impression management ($r = .13, p = .15$). Interestingly, participants low in impression management had a stronger correlation between depressive symptomology in their status updates and self-reported subclinical depression, compared to those high in impression management ($r = .44, p < .01$). This was especially true for feeling sick ($r = .48, p < .01$), feelings of sadness ($r = .30, p < .05$) and loss of interest ($r = .30, p < .05$). Table 9

displays the cue utilization and cue validity for the correlations between depressive symptomology and self-reported subclinical depression, split by impression management.

Discussion

In this study, participants completed personality and depression questionnaires and saved 3 months of Facebook activity. 5 independent raters rated the Facebook pages using the Big Five Inventory and other 1 item measures (e.g. “is depressed,” “is athletic”) and 2 independent coders that coded the Facebook status updates for depressive symptoms. The results revealed that personality traits and depression could be gauged from the Facebook pages with a degree of accuracy. Overall, we found a large amount of cue utilization, but not very much cue validity. That is, raters were likely to use certain cues when assessing personality traits, however, they were often invalid. In addition, impression management moderated the degree of accuracy in detecting emotional stability and depression – two highly evaluative traits.

Summary of results

Raters were overall able to detect the Big 5 personality traits quite well. The level of accuracy varied across the traits. In line with past findings (Back et. al, 2010), judges were able to detect Extraversion, Agreeableness and Openness to experience with a degree of accuracy. However, Conscientiousness and Neuroticism were difficult to accurately gauge based on Facebook profiles. While past research (Back et. al, 2010) found Emotional Stability hard to detect, this study found it easier to detect. This could be because in the past study status updates were not a feature in Facebook. We predicted that status updates would aid in the detection of emotional stability due to the amount of positive and negative affect words present. However unlike past findings (Back et. al, 2010), Conscientiousness was not as easy to detect. This could be due to the fact that some of the Facebook data that was used was taken while participants

were preparing for final exams. Everyone may have been task oriented and focused on school, instead of just those that were highly conscientious. Judges may have used this information as a cue in detecting Conscientiousness.

Judges could detect other personality traits, such as athleticism and political orientation, with a degree of accuracy. It is not surprising that judges could accurately detect political orientation. Ratings of political orientation were probably based from the information section of the Facebook profiles since users have the option to display their political orientation. In terms of athleticism, pictures on Facebook may indicate how active or athletic a person is, such as pictures of playing sports or rock climbing. There were other traits that judges were not as good at detecting, such as creativity and intelligence. Creativity may have been hard to detect using Facebook, because Facebook does not allow people the option to reflect their own style on their page. There are no options for colors, fonts or themes, which leaves everyone obliged to keep the same, generic format. When judging intelligence, judges may have been using invalid cues, such as a person's major, which may or may not be a valid indicator of intelligence. Also, self-rated intelligence does not correspond at all to measured intelligence, so the judges may actually be more accurate than the self. Many of the participants were first year college students, and freshman are notorious for changing their major a few times before choosing one that best suits their abilities. When looking at positive and negative mood, judges were generally good at detecting positive mood, but not negative mood. This may be because when in a good mood, users want to let others know how happy they are, but when they are in a bad mood, they may be more likely to hide it from others for fear of being judged. This suggests that negative mood states are highly evaluative and evoke a certain degree of impression management.

There was a lack of cue validity in this study for every trait but Extraversion.

Extraversion mapped on well to number of friends, number of tagged photos, number of wall posts and number of photo albums, while none of the other traits did. These findings could have resulted from the broad dimensions of the coded categories (e.g. number of photo albums). If narrow dimensions were coded (e.g. the number of pictures when a user is traveling), it is possible that these would map onto personality traits.

Judges were able to detect depression in Facebook users. This is likely due to the status updates, or “mini blog” component of Facebook that offer people the express themselves freely. Status updates capture thoughts and feelings which is how depression is manifested so it makes sense that they aid in the portrayal of depression. However, when looking at depressive symptomology in status updates, only feelings of sadness was indicative of self-reported subclinical levels of depression. Since most of the participants were college students, some of the depressive symptoms present in status updates (e.g. loss of energy, inability to concentrate) may have been more related to feeling stressed from the demands of school assignments and tests, than to feelings of depression. Status updates reflect feelings and sadness is a broad feeling that encompasses many symptoms. This could be why sadness was the most indicative symptom of depression. There were certain depressive symptoms (e.g. loss/increase of appetite, thoughts of death) that rarely appeared on status updates. This may be because status updates do not portray behavioral aspects as well as they do cognitive aspects. The findings suggest that when people are feeling depressed, they will be more likely to express it cognitively (e.g. I am feeling sad) than behaviorally (e.g. I haven't been hungry much today).

The results also revealed that the individual difference variable, impression management, moderated the level of accuracy for certain traits. As predicted, there was a greater degree of

accuracy for people low in impression management compared to people high in impression management in detecting Emotional Stability and Depression. People high in impression management work hard to censor information from other people, which is one explanation for why there was a difference in the level of accuracy. Our strongest finding for Impression Management is indicated when looking at depressive symptomology in status updates. Without looking at this individual difference factor, only feelings of sadness were related to self-reported subclinical levels of depression. However, when taking this variable into consideration, many more of the depressive symptoms were related to self-reported subclinical levels of depression for people low in impression management compared to people high in impression management.

Practical implications

All of these findings have several practical implications. It is important to know personality and be able to detect it in others, because we make judgments and first impressions on a daily basis. This research supports the fact that we generally make accurate first impressions, particularly using Facebook. Since so many people, especially college students, have and use Facebook to connect with friends and meet new people, it is important that others are seeing us for who we really are. Facebook profiles mean a lot to college students. For example college freshmen who receive their roommate assignment often look up their new roommate on Facebook and immediately make a first impression. If they are not pleased with the impression they make about their potential roommate, they will often try to change roommates before meeting them.

While personality is important in making reliable judgments, being able to detect depression is even more vital. Since depression is sometimes hard to detect and people do not readily admit depression, it is essential to identify which tools are useful in detecting it.

Facebook is primarily used to keep up to date with Friends, so if a friend begins to exhibit depressive symptoms in their posts, their friends could recognize that and check-in with them. They could even suggest they talk to a counselor if their behavior appears to be getting in the way of their daily functioning. Impression management is also an important personality trait to be aware of in regards to friends. A friend that is low in impression management is generally the type that will tell others every detail about their day, or what they did this past weekend, even details they may not want to know. Since they do not censor information about themselves, they share information truthfully and with no hidden component. Friends that are high in impression management will often say what is new in their life and what they did that day but without going into detail about how they felt, especially if it involves negative feelings. They carefully think about what they share with others, even close friends, and it is evident because they may come across as more closed off. If a friend is high in impression management, the best way to elicit information from them, especially about things they may highly censor such as depression, is to ask them direct questions. If a person suspects their friend may be depressed or experiencing suicidal thoughts, it could be helpful to ask them if they have been feelings more down than usual to try and elicit honest responses. Depending on the situation, a recommendation to talk to a counselor or another mental health professional may be necessary.

Limitations and Future Research

One limitation to this study is using Facebook.com accounts. Facebook is constantly changing its features and layouts, possibly impacting the degree people continue to utilize it. For example, we do not know if a person will change the way they express themselves when Facebook changes. This makes it hard to generalize the findings to other types of social media. With a social networking website like Twitter, I think people would be more accurate in judging

personality and depression, because it limits a lot of the extra information that may throw people off when making judgments.

Another limitation is at the criteria for the accuracy ratings. The current study used self-report to determine the participant's personality and depression and compared that to the rater's judgments. There are many other criteria to assess accuracy, such as using informant reports or collecting behavioral data. It is possible that the friend or behavioral reports would have been more in line with the rater's judgments. However, even with only having self-reports, the current study finds a degree of accuracy for personality and depression ratings.

With regards to depression, sub-clinical ratings assessed by the BDI were used instead of clinical interviews (e.g. SCID). It is possible that depression is extremely easy or hard to detect from Facebook pages of clinically depressed samples. For example, it is not known if people with diagnosed clinical depression have Facebook pages or if they do, if they even use them or update their status. It would also be interesting to do a similar study with high school students or young working adults. Depression is also prominent in these populations, so it would be important to see if depression is manifested in the same way on Facebook as it is for college students. In the future, raters could make personality and depression judgments in two different groups. Some raters could use the full Facebook profile while making judgments, while the others could use the status updates only. It would be interesting to see if looking only at status updates aided or hindered judgments of personality and depression. It also would be interesting to do a study similar to this study and use Twitter accounts, which is a social networking site where people only post status updates. Researchers could also code for different cues to see what else aids in the judgment of personality traits and depression.

Conclusion

Overall, this study suggests that Facebook profiles allow for accurate judgments of personality and depression. Facebook profiles, particularly the status updates on the profiles, aid in the detection of depression. Impression management moderates the detection of highly evaluative traits such as emotional stability and depression. The findings from this study suggest that people should be aware of what their friends are postings and check-in with friends if they see any patterns of depressive symptoms. This research demonstrates how useful social networking websites can be in detecting mental health issues, such as depression, that are usually hard to detect and often go unnoticed. This is important because the more we can make others aware of the prevalence of depression on Facebook, the more people may pay attention to changes in their friend's behaviors and thoughts portrayed through status updates.

References

- Ames, D. R., & Bianchi, E. (2008). The agreeableness asymmetry in first impressions: Perceivers' impulse to (mis)judge agreeableness and how it is moderated by power. *Personality and Social Psychology Bulletin*, 34, 1719-1736.
- Back, M.D., Schmukle, S.C., & S.C., & Egloff, B. (2008). How extraverted is honey.bunny77@hotmail.de? Inferring personality traits from email addresses. *Journal of Research in Personality*, 42, 1116-1122.
- Back, M., Stopfer, J., Vazire, S., Haddis, S., Schmukle, S., Egloff, B., & Gosling, S. (2010). Facebook profiles reflect actual personality no self-idealization. *Psychological Science*, *in press*.
- Baumeister, R.F. (1982). A self-presentational view of social phenomena. *Psychological Bulletin*, 91, 3-26.
- Baumeister, R.F., & Leary, M.R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.
- Beck, A.T., Ward, C.H., & Mendelson, M. (1961). An inventory of measuring depression. *Archives of General Psychiatry*, 4, 561-571.
- Buffardi, L.E., & Campbell, K.W. Narcisism and social networking websites. *Society for Personality and Social Psychology*, 34, 1303-1314.
- Buss, A.H. (1980). *Self-consciousness and social anxiety*. San Francisco: Freeman.
- Coyne, J.C. (1976). Toward an interactional description of depression. *Psychiatry*, 39, 28-40.
- Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision.
- Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71-75.

- Duval, T.S., & Wicklund, R.A. (1972). *A theory of objective self-awareness*. New York: Academic Press.
- Holleran, S.E. & Mehl, M.R. (2010). The Accuracy of Personality Judgments at Zero-Acquaintance: A Meta-Analysis of Studies using Realistic, Everyday Environments, *Under review*.
- John, O.P., & Robins, R.W. (1993). Determinants of interjudge agreement on personality traits. The Big Five domains, observability, evaluativeness, and the unique perspective of the self. *Journal of Personality*, 61, 521-551.
- John, O.P., & Srivastava, S. (1999). The big five trait taxonomy: history, measurement, and theoretical perspectives. In Lawrence, A.P. & Oliver, P.J. (Eds.), *Handbook of personality theory and research*. (pp.102-139). New York: The Guilford Press.
- Leary, M.R., Kelly, K.M., Cottrell, C.A., & Schreindorfer, L.S. (2005). *Individual differences in the need to belong*. Unpublished manuscript, Wake Forest University.
- Marcus, B., Machilek, F. & Schutz, A. (2006). Personality in cyberspace: personal web sites as media for personality expressions and impressions. *American Psychiatric Association*, 90. 1014-1031.
- Mehl, M.R. (2006). The lay assessment of subclinical depression in daily life. *Psychological Assessment*, 18, 340-345.
- Naaman, M., Boase, J., & Lai, C-H. (2010) Is it really about me? Message content in social awareness streams. In Proceedings, the 2010 ACM Conference on Computer Supported Cooperative Work (CSCW 2010), February 2010, Savannah, Georgia.
- Nestel, M., & Olshan, J. (20 February 2009). Brooklyn model leaves suicide note on facebook. *New York Post*. Retrieved from <http://www.newyorkpost.com>

- Nezlek, J.B., Hampton, C.P., Shean, G.D. (2000). Clinical depression and day-to-day social interaction in a community sample. *Journal of Abnormal Psychology*, 109, 11-19.
- Paulhus, D.L. (1991). Measurement and control of response bias. In J.P. Robinson, P.R. Shaver, & L.S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp.17-59). New York: Academic Press.
- Paulhus, D.L., Trapnell, P.D. (2008). Self-presentation of personality, an agency-communion framework. In O.P. John, R.W. Robins, & L.A. Pervin (Eds.), *Handbook of personality theory and research* (pp.492-517).New York: The Guilford Press.
- Pickett, C.L., Gardner, W.L., & Knowles, M. (2004). Getting a cue: The need to belong and enhanced sensitivity to social cues. *Personality and Social Psychology Bulletin*, 30, 1095-1107.
- Raskin, R. & Terry, H. (1988). A principal-component analysis of the narcissistic personality inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, 54,5.
- Rodriguez, A.J., Holleran, S.E., & Mehl, M.R. (2010). Reading between the lines: the lay assessment of subclinical depression from written self-descriptions. *Journal of Personality*, 78,575-597.
- The American College Health Association (2006). American college health association national college health assessment spring 2006 reference group data report (abridged). *Journal of American College Health*, 55, 195-206.
- The University of Arizona Introduction to Psychology Subject Pool, (2009).
- Vazire, S. & Gosling, S.D. (2004). E-perceptions: Personality impressions based on personal websites. *Journal of Personality and Social Psychology*, 87, 123-132.

Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.

Table 1

Inter-rater consensus and accuracy for raters' judgments of targets' levels of the Big Five Traits and single item measures

Trait	Inter-rater consensus	Accuracy
Extraversion	.79	.48**
Agreeableness	.71	.36**
Conscientiousness	.84	.16
Emotional Stability	.74	.19*
Openness to Experience	.82	.27**
<i>Mean Across Big 5 Traits</i>	.78	.29
Self-Esteem	.61	.25**
Happy	.62	.32**
Liberal	.82	.65**
Athletic	.83	.58**
Wealthy	.71	.39**
Likeable	.43	.02
Intelligent	.72	.03
Attractive	.80	.35**
Unconventional	.49	.29**
Creative	.70	.16
Lonely	.64	.21*
Need to belong	.64	.12
Satisfaction with life	.85	.29**
Positive Mood	.44	.24**
Negative Mood	.50	.05
Narcissism	.60	.18
Depression	.50	.21*
<i>Mean Across Single Item Measures</i>	.64	.26
<i>Overall Mean Across All Traits</i>	.68	.26

Note. BFI = Big Five Personality Inventory, single item measures and depression; $N = 122$; Inter-rater consensus is the intraclass correlation ICC [2, k] for 5 raters; full sample accuracy is the correlation between the aggregated raters' ratings of the BFI, single item measures and a single-item global measure of depression and the participant's self-reported BFI, single item measures and the BDI = Beck Depression Inventory; ** $p < .01$, * $p < .05$.

Table 2

Cue validity and utilization for judgments of Extraversion

Cue validity (<i>r</i>)	Extraversion Full Sample (<i>N</i> = 122) Cue	Cue utilization (<i>r</i>)
	<i>Objective</i>	
.38**	Total Friends	.53**
.12	Total Status Updates	.16
.32**	Total Comments from others	.40**
.24**	Total Number of Photo Albums	.26**
.34**	Total Number of Tagged Pictures	.51**

Note. *N* = 122; cue validity is the accuracy correlation between the participant's self-reported Extraversion from the BFI and coders' measures of cue categories; cue utilization is the correlation between the aggregated raters' ratings of Extraversion from the BFI and the coders' measures of cue categories ** $p < .01$, * $p < .05$.

Table 3

Cue validity and utilization for judgments of Agreeableness

Cue validity (<i>r</i>)	Agreeableness Full Sample (<i>N</i> = 122) Cue	Cue utilization (<i>r</i>)
	<i>Objective</i>	
-.09	Total Friends	-.01
.12	Total Status Updates	-.01
.18	Total Comments from others	.16
.05	Total Number of Photo Albums	.23*
.08	Total Number of Tagged Pictures	.14

Note. *N* = 122; cue validity is the accuracy correlation between the participant's self-reported Extraversion from the BFI and coders' measures of cue categories; cue utilization is the correlation between the aggregated raters' ratings of Agreeableness from the BFI and the coders' measures of cue categories ** $p < .01$, * $p < .05$.

Table 4

Cue validity and utilization for judgments of Conscientiousness

Cue validity (<i>r</i>)	Conscientiousness Full Sample (<i>N</i> = 122) Cue	Cue utilization (<i>r</i>)
	<i>Objective</i>	
.03	Total Friends	-.23**
-.03	Total Status Updates	-.06
.02	Total Comments from others	-.13
.02	Total Number of Photo Albums	.01
.00	Total Number of Tagged Pictures	-.28**

Note. *N* = 122; cue validity is the accuracy correlation between the participant's self-reported Extraversion from the BFI and coders' measures of cue categories; cue utilization is the correlation between the aggregated raters' ratings of Conscientiousness from the BFI and the coders' measures of cue categories ** $p < .01$, * $p < .05$.

Table 5

Cue validity and utilization for judgments of Emotional Stability

Cue validity (<i>r</i>)	Emotional Stability Full Sample (<i>N</i> = 122) Cue	Cue utilization (<i>r</i>)
	<i>Objective</i>	
-.13	Total Friends	.11
-.07	Total Status Updates	-.61**
-.08	Total Comments from others	-.02
-.12	Total Number of Photo Albums	-.04
-.04	Total Number of Tagged Pictures	.01

Note. *N* = 122; cue validity is the accuracy correlation between the participant's self-reported Extraversion from the BFI and coders' measures of cue categories; cue utilization is the correlation between the aggregated raters' ratings of Emotional Stability from the BFI and the coders' measures of cue categories ** $p < .01$, * $p < .05$.

Table 6

Cue validity and utilization for judgments of Openness to Experience

Cue validity (<i>r</i>)	Openness to Experience Full Sample (<i>N</i> = 122) Cue	Cue utilization (<i>r</i>)
	<i>Objective</i>	
-.03	Total Friends	-.36**
.06	Total Status Updates	.19*
-.09	Total Comments from others	-.14
-.09	Total Number of Photo Albums	-.02
-.06	Total Number of Tagged Pictures	-.26**

Note. *N* = 122; cue validity is the accuracy correlation between the participant's self-reported Extraversion from the BFI and coders' measures of cue categories; cue utilization is the correlation between the aggregated raters' ratings of Openness to Experience from the BFI and the coders' measures of cue categories ** $p < .01$, * $p < .05$.

Table 7

Cue validity and utilization for judgments of Depression

Cue validity (<i>r</i>)	Depression Full Sample (<i>N</i> = 122) Cue	Cue utilization (<i>r</i>)
<i>Profile Page Coding</i>		
-.01	Total Friends	-.18*
.16	Total Status Updates	.32**
.03	Total Comments from others	-.04*
.03	Total Number of Photo Albums	-.11
-.01	Total Number of Tagged Pictures	-.15
<i>Status Update Coding</i>		
.22*	Sad	.47**
.16	Loss of interest	.46**
-.07	Increase/decrease appetite	.11
.10	Increase/decrease sleep	.21*
.06	Worthlessness	.27**
-.02	Fatigue	.23*
.14	Inability to concentrate	.31**
.04	Death	.10
.12	sick	.30**
.12	Total Number of Symptoms	.42**
.20*	Number of Experiential Symptoms	.49**
.11*	Number of Behavioral Symptoms	.32**

Note. *N* = 122; cue validity is the accuracy correlation between the participant's self-reported Extraversion from the BFI and coders' measures of cue categories; cue utilization is the correlation between the aggregated raters' ratings of Depression from the BDI and the coders' measures of cue categories ** *p* < .01, * *p* < .05.

Table 8

Inter-rater accuracy for raters' judgments of targets' levels of the Big Five Traits and single item measures based on low and high impression management of the targets

Trait	Accuracy for low impression management	Accuracy for high impression management
Extraversion	.49**	.47**
Agreeableness	.29*	.33**
Conscientiousness	.04	.12
Emotional Stability	.46**	.03
Openness to Experience	.29*	.25*
<i>Mean Across Big 5 Traits</i>	.31	.24
Self-Esteem	.31*	.22
Happy	.32*	.30*
Liberal	.63**	.64**
Athletic	.69**	.49**
Wealthy	.38**	.39**
Likeable	-.01	.03
Intelligent	-.02	.06
Attractive	.23	.42**
Unconventional	.22	.34**
Creative	.33*	-.01
Lonely	.43**	.07
Need to belong	-.08	.21
Satisfaction with life	.40*	.17
Positive Mood	.29*	.13
Negative Mood	.01	.05
Narcissism	.17	.17
Depression	.31*	.13
<i>Mean Across Single Item Measures</i>	.27	.22
<i>Overall Mean Across All Traits</i>	.28	.23

Note. BFI = Big Five Personality Inventory, single item measures and depression; $N = 122$; Inter-rater consensus is the intraclass correlation ICC [2, k] for 5 raters; full sample accuracy is the correlation between the aggregated raters' ratings of the BFI, single item measures and a single-item global measure of depression and the participant's self-reported BFI, single item measures and the BDI = Beck Depression Inventory; ** $p < .01$, * $p < .05$.

Table 9

Cue validity and utilization for judgments of depression for impression management moderator

Cue validity low IM	Cue validity high IM	Depression Full Sample ($N = 122$) Cue	Cue utilization low IM	Cue utilization high IM
<i>Profile Page Coding</i>				
-.12	.08	Total Friends	-.21	-.16
.26	.15	Total Status Updates	.20	.41**
-.07	.12	Total Comments from others	-.11	.01
.03	.04	Total Number of Photo Albums	-.21	-.10
.08	-.12	Total Number of Tagged Pictures	.15	.41**
<i>Status Update Coding</i>				
.30*	.19	Sad	.39**	.54**
.30*	.07	Loss of interest	.51**	.44**
--	-.08	Increase/decrease appetite	--	.15
.14	.07	Increase/decrease sleep	.26	.18
.12	-.02	Worthlessness	.49**	.07
.26*	-.10	Fatigue	.22	.27*
.27*	.07	Inability to concentrate	.34**	.31*
.08	-.01	Death	.26	-.04
.48**	.01	sick	.28*	.34**
.44**	.01	Total number of symptoms	.51**	.00

Note. $N = 122$; cue validity is the accuracy correlation between the participant's self-reported depression from the BDI and coders' measures of cue categories; cue utilization is the correlation between the aggregated raters' ratings of depressive symptomology and the coders' measures of cue categories ** $p < .01$, * $p < .05$. – Symptom was not present

Table 10

Intercorrelations among Big 5 personality traits, narcissism, impression management and depression

	EXT	AGR	CON	EMS	OPE	Narcissism	Impression Management	Depression
EXT	-	.18*	.18*	.16*	.19*	.34*	.01	-.20
AGR		-	.32**	.38**	0.05	-.20*	.46**	-.19*
CON			-	.29**	.00	.08	.41**	-.30**
EMS				-	0.14	.27**	.32**	-.50**
OPE					-	.08	.05	-.08
Narcissism						-	-.14	-.10
Impression Management							-	-.24
Depression								-

Note. $N = 122$; Intercorrelations are the correlations between extraversion, agreeableness, conscientiousness, emotional stability, openness to experience, narcissism, impression management and depression. ** $p < .01$, * $p < .05$.