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The Dark Triad and Facebook surveillance: How Machiavellianism, psychopathy, but not narcissism predict using Facebook to spy on others

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ABSTRACT

The Dark Triad of personality – Machiavellianism, narcissism, and psychopathy – has been shown to influence a variety of behaviours. Typically, high levels of these traits predict engaging in behaviour at the periphery of what is considered socially normative. Such individuals do not display clinical maladaptation however, and function relatively normally. The Dark Triad's influence extends to the online context, where it predicts questionable behaviour when using social media such as Facebook. For example it can affect the content of users' status updates, or what media they post. In this paper we examine a new concept known as *Facebook surveillance*. This details the deliberate examination of users' profiles in order to gather information for one's own advantage. We suggest this is distinct with the conventional viewing of ones "feed" (which has little intent), or the *stalking* of ex-romantic partners (which has a emotive component). We predicted that Machiavellianism and psychopathy would both predict Facebook surveillance, whereas narcissism would not. Furthermore, we postulated that the Machiavellianism-surveillance relationship would be mediated by endorsement of gossip, whereas for psychopathy it would be mediated by intolerance for uncertainty. 259 participants took part in an online survey to measure these traits. Results supported our hypotheses, and suggested two forms of surveillance – Facebook tracking, which was more recreational, and Facebook investigating, which was more deliberate and targeted. Future studies are then discussed which may use more complex measures of narcissism, and gather behavioural and/or qualitative measures of surveillance.

1. Introduction

Since its inception over 15 years ago, the Dark Triad of personality has presented an intriguing picture of three traits which are within the normal range of functioning, but nevertheless give rise to aberrant or socially transgressive behaviour (Furnham, Richards, & Paulhus, 2013; Paulhus & Williams, 2002). The first component of the triad - narcissism - describes a tendency to self-aggrandisement, entitlement, and feelings of superiority. The second – Machiavellianism – relates to a manipulative or exploitative personality. The final component – psychopathy – predicts impulsivity, and low levels of empathy. Work on the Dark Triad has generated over 800 citations in Web of Science since the publication of the original paper; thus, its influence within psychology is considerable.

The Dark Triad has been shown to influence a number of behaviours in a variety of domains, usually in a way that is somewhat deviant. The traits, although conceptually distinct also tend to show some overlap in the way they impact on behaviour. For example, individuals with high levels of Machiavellianism and psychopathy tend to lie more often to others (Baughman, Jonason, Lyons, & Vernon, 2014); the latter also tend to enjoy lying. Psychopathy overall tends to be positively linked with demonstrating less compassion towards others (Lee & Gibbons, 2017), and psychopathy and narcissism both predict greater likelihood of taking risks (Jones, 2013; Malesza & Ostaszewski, 2016). The Dark Triad also influences other "milder" deviant behaviours. Psychopathy and narcissism both predict a greater likelihood of procrastination (Lyons & Rice, 2014), and all three traits in the Triad predict greater feelings of enjoyment at observing others' misfortune (Porter, Bhanwer, Woodworth, & Black, 2014). Overall the Dark Triad appears to wield considerable power over our more socially inappropriate tendencies.

1.1. The Dark Triad and interactions online

Since the explosion in popularity of social media in the late 2000's, websites such as Facebook, Instagram, and Twitter have seen billions of users flock to their domains to communicate with others. Concordant with this, psychologists have been keen to examine what might influence online behaviour, and how it may be different from *offline* behaviour. A prominent finding is that the anonymity afforded by an online context can facilitate a considerable amount of deviant behaviour

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(Postmes, Spears, & Lea, 1998; Postmes, Spears, Sakhel, & de Groot, 2001; Tom). Users may often attempt to cause inconvenience to others online (Buckels, Trapnell, & Paulhus, 2014; Thacker & Griffiths, 2012) and the rise in *cyberbullying* (Kowalski, Giumetti, Schroeder, & Lattanner, 2014; Menesini & Spiel, 2012) demonstrates that some individuals are keen to use the Internet as a means to harm others. Thus, we have an intersection of two topics. The Dark Triad is complicit in explaining many deviant behaviours, and the use of the Internet and social media likewise may give rise to inappropriate actions from users. What then of the two together? That is, can the Dark Triad predict engagement in certain kinds of online behaviour?

The most popular social media site is Facebook, with over two billion active users. The primary functions of Facebook are to allow individuals to form and maintain social relationships with others (Yang & Brown, 2013). Users can post public status updates, private message others, and post video and photos for others to see.

The Dark Triad has been studied with regard to how it may influence various aspects of Facebook behaviour. By far the most studied aspect is narcissism. Intuitively, we may suppose that high levels of narcissism may lead to greater Facebook use, as the narcissist seeks to "show off" in front of other users. And indeed, some work has shown that narcissists *do* use Facebook more often (Blachnio, Przepiorka, & Rudnicka, 2016; Eşkisu, Hoşoğlu, & Rasmussen, 2017). Narcissists may also be more strategic and selective with the photograph they use to represent themselves (Kapidzic, 2013; Scott, Boyle, Czerniawska, & Courtney, 2017), choosing pictures which are more flattering. When posting material, narcissists may attempt to elicit responses from others to enhance their social capital (Ozimek, Bierhoff, & Hanke, 2018) by using emotion-laden content (Errasti, Amigo, & Villadangos, 2017). If they do not receive the reactions they are hoping for from these posts, narcissists may react in a volatile fashion, lashing out against their network (Carpenter, 2012). Machiavellianism and psychopathy by contrast have received relatively little attention regarding their influence on Facebook use. The former has been associated with making posts that are more dishonest (Abell & Brewer, 2014) and emotionally cold (Garcia & Sikström, 2014). The latter seems to predict making aggressive or unpleasant comments to others on Facebook (Bogolyubova, Panicheva, Tikhonov, Ivanov, & Ledovaya, 2018; Lopes & Yu, 2017).

1.2. The many functions of Facebook

During its life cycle, Facebook has come to facilitate functions that were not necessarily in mind when it was created. Users are may *stalk* ex-partner's on the site; obsessively following their posts to keep track of what they are doing (Navarro, Marcum, Higgins, & Ricketts, 2016). Users will often return to their ex-partner's Facebook page (Lukacs & Quan-Haase, 2015; Tokunaga, 2011) following a breakup, particularly if they did not instigate the breakup (Tong, 2013).

The amount of information posted on Facebook also means that users can engage in what we have termed *Facebook surveillance*. This is when users look that their Facebook "friends" profiles' in an effort to gather information to *advantage* themselves. Furthermore, this is not intended to benefit the target (so efforts to find out a person's interests in order to buy a suitable Birthday present would *not* be considered surveillance in this case). Of course, Facebook use always entails a certain degree of voyeurism on other's activities, as users scroll down their feed to see what others in their network have posted. We distinguish surveillance from this typical Facebook use by noting it is *deliberate, covert, and targeted*. That is, the actor is not simply browsing their feed, but is actively using Facebook to look at a specific person's profile and find out useful information. In this sense it is akin to the aforementioned stalking but is distinct in three ways. First, the target could be any other Facebook user that the surveiller has access too, not just the their former partner. For the most part, these will be the surveiller's "friends", but it is also possible to look at the profiles of those not within one's social network if that user has set their account to be visible to the public. Second, the examination of former partners' profiles is usually motivated by the desire to reconcile the end of the relationship and assist with transition to a new one. Facebook surveillance is not intended to assist with this kind of transition. The actor is surveilling in order to gather information, not to move on from a romantic relationship. Third, the process is not aversive for the actor (as viewing a former partner's profile can be, particularly if they have formed a new intimate relationship), but is something they are happy to do.

Some researchers have already noted the "information gathering" motive (Chen & Kim, 2013; Hunt, Atkin, & Krishnan, 2012; Tosun, 2012) in Facebook use. However, this research applies the traditional passive use of Facebook as a browsing experience, extracting information from the feed delivered by the site algorithm. The current work is the first to examine the *active* consumption of others' profiles, and the targeting of particular Facebook users in order to gather information and serve one's own interests.

1.3. Predicting Facebook surveillance

As the Dark Triad influences online behaviour in general, and Facebook posting behaviour specifically, we suggest that it is also likely to influence the extent to which a user engages in Facebook surveillance. Given that it is common for Facebook users to post intimate and personal details about themselves on the site (Carr, Schrock, & Dauterman, 2012; Liu, Tov, Kosinski, Stillwell, & Qiu, 2015), it may be of some concern that individuals high in the Dark Triad traits engage in surveillance behaviour. That is, as the Dark Triad tends to correspond to more maladaptive attitudes and behaviours, those engaged in surveillance may be doing so for nefarious purposes. In this paper, we investigate to what extent the Dark Triad predicts engaging in Facebook surveillance, to see if these concerns are justified.

Machiavellianism is linked with manipulation and exploitation of others. So, we hypothesise that those high in this trait will be more likely to engage in Facebook surveillance (H1) as by doing so they can increase their repertoire of "advantageous" information they possess. Those high in this trait also tend to enjoy *gossip* (Lyons & Hughes, 2015)- the discussing of absent third parties (Foster, 2004). It has been suggested that far from being frivolous cheap talk, gossip can actually serve a vital social function, allowing the transmission of important information about others within a group (Dunbar, 2004; Fine & Rosnow, 1978). Individuals can also use gossip to gather information about others to advantage themselves (Baumeister, Zhang, & Vohs, 2004). So, it is likely that those high in Machiavellianism also tend to be more endorsing of using gossip to gather information. As the tendency to approve of gossip increases, so users will turn to Facebook more to gather gossip-esque information. That is, the relationship between Machiavellianism and Facebook surveillance will be mediated by endorsement of gossip (H2).

Psychopathy may also predict Facebook surveillance, but for different reasons than Machiavellianism. Those high in this trait tend to dislike feelings of uncertainty (Sabouri et al., 2016) and are motivated to reduce them. One method of doing this is by gathering information about one's surrounding environment, to enhance feelings of control (Kellermann & Reynolds, 1990; Ruggiero et al., 2012). It is likely that as the discomfort from uncertainty increases, an individual will be more and more motivated to engaged in behaviour that reduces it. Thus, we predict that those high in psychopathy will also be more likely to engaged in Facebook surveillance (H3), and that participants' psychopathy scores tend to increase, so too will feelings of uncertainty and the desire to reduce them by engaging in surveillance. That is, the relationship between psychopathy and Facebook surveillance will be mediated by feelings of uncertainty (H4).

For those high in narcissism, the picture may be somewhat different. As we have seen, narcissists are adept at manipulating their *own* profile and posts to fulfil their goals of self-aggrandisement and validation. But,

they usually demonstrate lower levels of empathy towards others (Di Pierro, Di Sarno, Preti, Di Mattei, & Madeddu, 2018; Watson & Morris, 1991) which could manifest in disinterest in others' profiles. Viewing posts by others on Facebook does not help a narcissist fulfil any goals, and high levels of narcissism usually correspond with failure to engage with the more sociable, outward-facing components of Facebook (Horton, Reid, Barber, Miracle, & Green, 2014; Wang, Jackson, Zhang, & Su, 2012). Therefore, we think it is likely that those high in narcissism will be unlikely to engage in Facebook surveillance. That is, we hypothesise *no* meaningful relationship between narcissism and Facebook surveillance (H5).

1.4. An overview of the current work

In this paper, we address this novel topic by asking participants to complete a survey measuring their levels of the Dark Triad, and the extent to which they engage in Facebook surveillance. As this is the first paper to examine this, a new measure was created to measure this kind of behaviour. Condonement of gossip and tolerance of uncertainty were also measured using pre-existing scales to examine their role as mediators.

2. Method

2.1. Participants

Two-hundred and eighty-three participants were initially recruited for the study via the online data collection site "Prolific.ac". Prolific uses crowd-sourcing in a similar manner to Amazon Mechanical Turk. Such sites have been shown to provide good quality data, comparable to that obtained through convenience sampling (Kim & Hodgins, 2017; Pauszek, Sztybel, & Gibson, 2017; Thomas & Clifford, 2017). Furthermore, Profilic improves on Mechanical Turk by requiring unique phone numbers, restricting access from suspect IPs, and scrutinizing participant accounts for fraudulent use ("Bots and data quality on crowdsourcing platforms," 2018).

Of these 283, 24 failed to answer all questions and so their data was removed, leaving 259 participants who completed all parts of the survey. 108 participants were male, 150 female, and 1 participant recorded as gender-neutral. The mean age of participants was 20.49 years (SD = 19.16), with and age range from 15 to 69 years old. Therefore, we are confident we have good representation across ages and gender, and our data is generalisable to the overall population. Participants received £1 (approximately $1.34) for taking part.

2.2. Materials

The Dark Triad was measured using the Short Dark Triad (SD3, Jones & Paulhus, 2014). Each of the three traits is measured with 9-items (e.g. "I know that I am special because everyone keeps telling me so" for narcissism; "people often say I'm out of control" for psychopathy, and "I like to use clever manipulation to get my way" for Machiavellianism), answered on a 5-point Likert scale from "disagree strongly" to "agree strongly".

Endorsement of gossip was measured using the Attitudes to Gossip scale (Litman & Pezzo, 2005) (e.g. "it's fun to talk about other people"), responded to on the same scale as the SD3. Intolerance of uncertainty was measured using the scale of the same name (Sexton & Dugas, 2009) (e.g. "uncertainty keeps me from having a full life"), answered on a 5-point Likert scale from "not at all characteristic of me" to "entirely characteristic of me". A higher score here indicates greater intolerance of uncertainty.

To measure Facebook surveillance, a focus group of 40 undergraduate students was convened, and the basic concept of this kind of surveillance was outlined. The group was divided into sub-groups of four, and each was asked to produce five items which measured "the tendency to use Facebook to gather information about someone to advantage yourself, which does not lead to a benefit for the subject of the examination". Pairs of sub-groups rated each other's items for appropriateness, from 1 (not at all) to 3 (very much), and based on the feedback received chose their two best items. These were then entered into a shared spreadsheet, and all 40 individuals rated all items there for appropriateness. A mean index was calculated for each item, and the top two highest scoring were allocated to the scale. This was repeated with six other different groups of 40, producing 14 items in total. All scales were placed on the survey hosting site Qualtrics, and a link was created to be distributed to participants.

2.3. Procedure

After indicating their consent for participation, participants began the survey and answered all questions online. The survey first presented the SD3, followed by the Tolerance to Uncertainty scale, the Attitudes to gossip scale, and then the Facebook surveillance scale. Participants were then told their participation was complete, and they were supplied with an email address to contact for a debriefing form if they wished (none did).

2.4. Analysis plan

Following data collection, data was analysed using the PROCESS macro devised by Hayes (2017) which allows for examination of the *indirect* effects of variables for a mediator. The analyses produce confidence intervals for the indirect effect which – if they do not contain zero – indicate an effect is present. The macro also produces measures of direct effects (i.e. the effect of the main predictor on the outcome when included with the mediator).

3. Results

3.1. Data preparation

Several items within the survey as a whole required reverse coding. When this was completed, a Chronbach's alpha analysis was conducted on each scale in turn to assess its reliability. Each sub-scale within the SD3 was analysed separately. The narcissism and psychopathy subscales each required two items removing to bring the alpha above .7.[1] All other scales were 0.7 or above with all items included.

A factor analysis using an oblimin rotation was applied to the Facebook surveillance scale, as we expected factors to correlate. This suggested two factors (KMO = 0.92; see Table 1). Factor 1 seemed to relate to general surveillance of others and enjoyment of secrete knowledge; we named this *Facebook tracking*. Factor 2 seemed to relate more to spying on certain people to check if they had been telling the truth; we named this *Facebook investigating*.

Cronbach's alpha for each factor was over 0.7 indicating good reliability. The mean extraction from each factor was also over 0.7, suggesting good convergent validity. The mean extraction from each factor was squared to provide the variance, as was the correlation

[1] As it was somewhat surprising that items were removed from such well-established scales, the following mediation analysis was also performed with all items from the scales included. This produced the same findings; namely, that there were significant indirect effects for Machiavellianism via endorsement of gossip on Facebook tracking (B = 0.09, SD = 0.03, CI[0.03, 0.17]) and Facebook investigating (B = 0.07, SE = 0.03, CI[0.02, 0.13]), and for psychopathy on Facebook investigating via intolerance for uncertainty (B = 0.08, SE = 0.04, CI[0.01, 0.16]). The direct effect for psychopathy on Facebook tracking was also significant (B = 0.27, SE = 0.09, t = 2.70, p < .01). All other direct and indirect effects were non-significant. It was decided that the version with the items removed would be presented in the main Results section as the alpha was highest for these versions.

Table 1
Factor loadings for Facebook surveillance items with varimax rotation.

Item	Facebook tracking	Facebook investigating
1. I have waited for a specific person to post on Facebook so I can read what they have written	-.01	**.77**
2. I look at specific people's profiles to see what they are doing	.19	**.69**
3. I use Facebook to keep track of what my friends are up to	-.15	**.86**
4. I use Facebook to spy on friends	**.67**	.26
5. I use Facebook to check up on people and see if what they have told me face-to-face is true	.39	**.51**
6. I use Facebook to check up on people	**.48**	.42
7. Facebook is a useful tool for finding out what people are really like	.15	**.59**
8. I use Facebook to find out things about people who I don't know yet, but may meet in the future	**.55**	.25
9. I use Facebook to investigate people	**.75**	.15
10. I look at the profiles of people who are friends of friends to find out about them	**.54**	.34
11. I think it is unacceptable to use Facebook to spy on other people	**.86**	-.20
12. I like to "stalk" some people's Facebook profiles	**.84**	-.06
13. I enjoy the feeling of gathering secret knowledge about another person	**.84**	-.01
14. It is exciting to spy on someone's profile	**.85**	.01
Cronbach's alpha	.82	.92

Note. The highest factor loading in each column is highlighted in bold.

between factors (0.533). A comparison showed that the means variance (0.495) was greater than the correlation squared (0.284) suggesting good divergent validity.

Confirmatory factor analysis was performed using AMOS Graphics, placing each item over the appropriate "latent" factor. Indices for goodness-of-fit were moderate. Chi-square was significant; however this is not unusual for a sample of this size. NFI was greater than 0.9, but RFI was slightly less than 0.9 and RMEA was greater than 0.5 by some degree – see Table 2. This output combined with the previous validity analysis indicates our two-factor solution is adequate for the current purpose.

Means were then calculated for each sub-scale of the SD3, the tolerance for uncertainty and attitudes to gossip scales, and the two factors in the Facebook surveillance scale for use in the main analyses – see Table 3 for overview.

3.2. Data analysis

A *t*-test performed to compare genders on our key variables (i.e. the Dark Triad, intolerance for uncertainty, endorsement of gossip, Facebook investigating, and Facebook tracking) produced no significant differences (highest $t = 1.4$, $p = .17$). A correlation between participants' age and those same variables also produced no significant relationships (highest $r = 0.12$, $p = .06$) except a negative association between age and intolerance for uncertainty ($R = -0.20$, $N = 258$, $p < .01$). Therefore, we excluded age and gender from subsequent analysis.

For the four mediation analyses below, scatterplots of predicted values and standardised residuals indicated homoscedasticity in all models. All models had less than 5% of standardised residuals exceeding 2 standard deviations, and none exceeded 3, indicating a normal distribution of data. The average VIF for all models was below 1.12, and all tolerances were less than 0.96 indicating that multicollinearity was not an issue. Durbin-Watson for all models did not exceed 2.26, indicating that autocorrelation was not present.

Our hypotheses were tested using the PROCESS regression macro (Hayes, 2017) using 5000 bias-corrected bootstrapped samples. The indirect effect for Machiavellianism via endorsement of gossip was significant for both Facebook tracking (B = 0.09, SE = 0.03, CI [0.04, 0.16]) and Facebook investigating (B = 0.07, SE = 0.03, CI [0.02, 13]), indicating mediation was present in both cases and supporting H1 and H2. The direct effect of Machiavellianism was not significant for either model (t's < 1.47, ns) – see Figs. 1 and 2.

For psychopathy, the indirect effect of intolerance for uncertainty was significant for Facebook investigating (B = 0.08, SE = 0.04, CI [0.01, 0.15]), but not for Facebook tracking B = 0.08, SE = 0.04, CI [-0.004, 0.16]). However, the direct effect between psychopathy and Facebook tracking *was* significant (B = 0.27, SE = 0.10, t = 2.70, p < .01), but was non-significant for Facebook investigating (B = 0.10, SE = 0.09, t = 1.06, p = .29). Therefore H3 and H4 received partial support (see Figs. 3 and 4).

Finally, Facebook tracking and investigating were regressed onto participants' narcissism using a simple regression analysis. Neither were significant (F's < 1.15, ns) supporting H5.

Table 2
Goodness-of-fit indices for two-factor CFA.

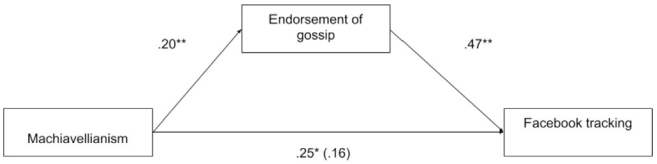
Index	Value
X^2	113.40** (26)
NFI	.91
RFI	.88
RMSEA	.11

Note. Figures in brackets indicate df. * = p < .05. ** = p < .01.

Table 3
Descriptives statistics for variables measured.

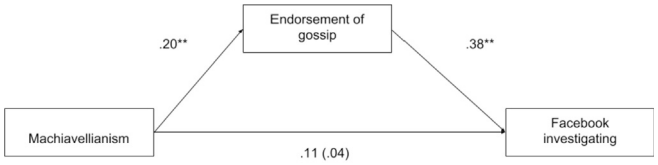
Variable type	Variable	Descriptive	
		Mean	SD
Dark Triad	Machiavellianism	3.06	.54
	Narcissism	2.50	.55
	Psychopathy	2.22	.62
Mediators	Endorsement of Gossip	2.61	.56
	Intolerance for uncertainty	2.69	.81
Facebook surveillance	Facebook tracking	2.55	.96
	Facebook investigating	2.73	.89

Note. Dark Triad measures derive from responses to the Short Dark Triad (Jones & Paulhus, 2014). Mediators derive from the Attitudes to Gossip and Tolerance for Uncertainty scales (Litman & Pezzo, 2005; Sexton & Dugas, 2009). Facebook surveillance measures created by experimenter.



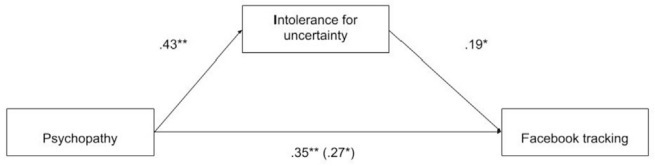
Note. Numbers in parentheses indicate effect when mediator is also included (*direct effect*). All figures are unstandardised regression coefficients.
*=p<.05. **=p<.01.

Fig. 1. Mediation of Machiavellianism on Facebook tracking by endorsement of gossip.



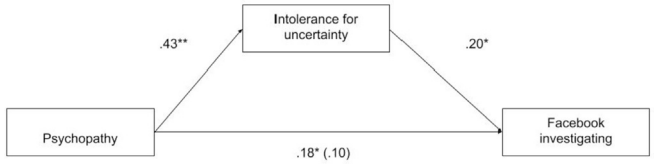
Note. Numbers in parentheses indicate effect when mediator is also included (*direct effect*). All figures are unstandardised regression coefficients.
*=p<.05. **=p<.01.

Fig. 2. Mediation of Machiavellianism on Facebook investigating by endorsement of gossip.



Note. Numbers in parentheses indicate effect when mediator is also included (*direct effect*). All figures are unstandardised regression coefficients.
*=p<.05. **=p<.01.

Fig. 3. Mediation of psychopathy on Facebook tracking by intolerance for uncertainty.



Note. Numbers in parentheses indicate effect when mediator is also included (*direct effect*). All figures are unstandardised regression coefficients.
*=p<.05. **=p<.01.

Fig. 4. Mediation of psychopathy on Facebook investigating by intolerance for uncertainty.

4. Discussion

4.1. Summary of findings

Most previous studies on Facebook examine users' own behaviours. Those that look at targeting others' profiles tend to only focus on (ex-) romantic partners. In this paper, we carry out the first examination of what we term *Facebook surveillance,* where users deliberately examine the profiles of others' with the aim of gathering information. Our preliminary measure of this suggests two kinds of surveillance. Facebook *tracking* relates to the checking of profiles to gather information in general, almost recreational way. Facebook *investigating* seems to relate to more serious and goal-driven surveillance, targeting a specific person to see if they are telling the truth.

Overall, we have found support for our hypotheses. Machiavellianism led to greater Facebook surveillance, which appeared to be driven by an endorsement of gossip as the trait intensity increased. This was the same for both Facebook tracking and investigating. For psychopathy, Facebook investigating was linked with intolerance to uncertainty, but Facebook tracking was not. Instead, psychopathy directly influenced this form of surveillance. This may relate to the pleasurable component of gathering information about another person without their knowledge – recall that this kind of surveillance is more recreational in nature. Those high in psychopathy tend to relish the feelings of power and control (Muris, Merckelbach, Otgaar, & Meijer, 2017; Sest & March 2017). So, they may also be keen to observe the profiles of others in order to satisfy this voyeuristic tendency.

Narcissism did not predict either kind of Facebook surveillance. This supports the idea that narcissists are keen to have others react to *their* profiles, but are unconcerned with what other users may post on theirs.

4.2. Incorporating Facebook surveillance into existing Dark Triad work

As the Dark Triad traits somewhat overlap and all link with socially prohibited thoughts and actions, one may expect that each will influence thoughts and actions in the same direction. Some previous work has supported this idea, showing that all three traits positively predict aggression towards others (Barlett, 2016) and the likelihood of taking revenge against a cheating partner (Brewer, Hunt, James, & Abell, 2015). Therefore our "null" finding for narcissism may seem unusual.

In fact, these kinds of findings are in the minority. It is actually more likely that the traits will act in different directions and/or that one will be unrelated to the topic of interest. For example, when examining political attitudes, Anderson and Cheers (2017) were able to predict conservatism via Machiavellianism and psychopathy, but narcissism was did not add any predictive capability. A similar finding was present for Baughman et al. (2014) which demonstrated the relationship between psychopathy, Machiavellianism, but *not* narcissism to lying. It is not always narcissism which does not co-vary with the traits of interest. Garcia and Sikström (2014) found that psychopathy and narcissism both predict the semantic content of Facebook statues, but Machiavellianism did not. Machiavellianism also provided no contribution to models looking at a variety of topics such as trolling behaviour on Facebook (Lopes & Yu, 2017) general well-being (Blachnio et al., 2016), or gambling behaviour (Jones, 2013) whereas the other two traits did.

Therefore, this work fits well into the extant literature, demonstrating the distinctiveness of the Triad and how each trait can be examined as a separate influence on certain behaviours. It supports the idea that rather than considering the Dark Triad as a general "aberrant" influence on attitudes and behaviour, each trait must be examined separately, and should ideally have its own hypotheses generated when formulating research in this area.

4.3. Implication for Facebook use

The aim of this paper was to examine whether individuals scoring highly on the Dark Triad would engage in deliberate information gathering using others' Facebook profiles. The results from this study seem to indicate that these concerns may be valid. Those high in two of the three Dark Triad traits *do* engage in more surveillance. In particular, those high in Machiavellianism seem to do so because they enjoy gossip, suggesting that they may be keen to tell others about the information they find whilst looking at others' profiles. Although for psychopathy some surveillance seems driven by a desire to reduce feelings of uncertainty, there is also a suggestion that the pleasurable component of spying on others may be in operation here. As psychopathy tends to correlate with low empathy and high callousness, this may be of some concern.

Taken together, the findings here suggest Facebook users should be reticent about posting every detail of their lives online. Although this may seem obvious, many users do post intimate details of their lives publicly on social media (Jordán-Conde, Mennecke, & Townsend, 2014; Nitzburg & Farber, 2013). Those that do so should be aware that there may be other users who are actively seeking information on Facebook which they consider a valuable resource, rather than passively consuming what is presented to them by the site.

Of course, we should temper any alarm that these findings may propagate. The Dark Triad may be implicated in the tendency to scour Facebook for information, but we have not actually examined what happens following surveillance. Although the Dark Triad predicts deviant behaviour in other domains, that does not mean that surveillance on Facebook will inevitably lead to deleterious consequences for a target. Further studies should be conducted to see these concerns *are* justified, or whether surveillance is purely a hedonic experience, with

no instrumental value.

4.4. Methodological issues and considerations for subsequent studies

This paper has been a first foray into examining the phenomenon of *Facebook surveillance* – the viewing of others' Facebook profiles for one's own benefit. As such, there are a number of adjustments which we intend to address in future work.

First, we would seek to replicate these findings with a further sample population. Although the representation of Facebook users generally is sound in the current work, we believe it is always prudent to gather further data to augment new findings.

Second, our measure of Facebook surveillance needs further refinement and testing to become a more rigorous and accurate scale. The intention of this paper was *not* to produce a finished, refined scale but rather act as a "first pass" and provide an initial approximation of this kind of behaviour. Indeed, this is the first paper to mention this kind of Facebook use – when given the definition participants instinctively recognised what as being referred, so it is clearly a common occurrence. We have been successful in our endeavour to bring this behaviour to light, but improvement could be made.

Third, we also have no strict behavioural measure of participants' surveillance, we only have self-report. Measuring actual Facebook surveillance behaviour would be challenging from a methodological, technological, and ethical standpoint, as it would have to involve observing participants use of their Facebook account as they use it in the real world. Perhaps an alternative would be to create some *implicit* measures of Facebook use which could tap better into this kind of behaviour without alerting participants to its nature.

Fourth, we have used a recognised and validated method – the SD3 – to measure the Dark Triad, but there are many other tools out there which may give more depth to those traits. Other researchers have suggested *two* forms of narcissism, grandiose and vulnerable (Derry, Ohan, & Bayliss, 2017; Jauk, Weigle, Lehmann, Benedek, & Neubauer, 2017). The former refers to more the more intuitive definition, with individuals demonstrating superiority and entitlement whereas the latter reflects a fragility and hypersensitivity to the reactions of others. As well as this, the NPI-13 (Gentile et al., 2013) provides an overall narcissism measure, but also *three* subscales – grandiose/exhibitionist, leadership/authority, and entitlement/exploitative narcissism. Each of these are quite different and can alter behaviour in different ways (e.g. Kajonius & Björkman, 2018). Psychopathy too can be separated into several sub-scales depending on the measure used. The Self-Report Psychopathy Scale version 3 (SRP-III) is perhaps the most well-known (Gordts, Uzieblo, Neumann, Van den Bussche, & Rossi, 2017), detailing four sub-scales of antisocial behaviour, impulsive thrill-seeking, interpersonal manipulation, and cold affect. Thus, we may have more diverse measures available to look at the Dark Triad in more detail. It should be noted that this level of granularity may compromise the brevity of a questionnaire; most tools to measure psychopathy for example are well over 100 items.

Finally, work on maladaptive traits has suggested the Triad should be extended to a Dark *Tetrad*, which adds *sadism* to the collective (Buckels, Jones, & Paulhus, 2013; Međedović & Petrović, 2015). Work has already shown that this trait may offer a unique predictive path for attitudes and behaviour (e.g. Chabrol, Bouvet, & Goutaudier, 2017; Smoker & March 2017; Tsoukas & March 2018). Furthermore trait sadism has also been identified as a factor in some social media behaviours such as trolling others on Facebook (Craker & March 2016). Whilst the Dark Tetrad has not penetrated the psychological literature to the same extent as the Dark Triad, it may still be worth including a measure of sadism in other work on Facebook surveillance, particularly if we are postulating that the information gathered by surveillance may be used to harm the owner.

4.5. Conclusion

The aim of this paper was to investigate an often-performed but rarely studied behaviour – Facebook surveillance, the act of deliberately examining other's Facebook profiles to gather information for one's own benefit. We have found support for the idea that this behaviour may be linked with traits within the Dark Triad – namely Machiavellianism and psychopathy – and that the motivational pathways for these links are different. Whereas Machiavellianism seems linked with a propensity for gossip, psychopathy is related more for a desire to reduce uncertainty. Narcissism by contrast was not related to surveillance behaviour.

With this first study established, future work can refine the measure of Facebook surveillance, look in greater detail at the various aspects of the Dark Triad in this model, and consider the consequences of surveillance to users. Such data would provide further illumination about the role of social media in modern society.

Declaration of interest

None.

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