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# Short Dark Triad test (SD3)

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## **Abstract**

*Three socially aversive traits—Machiavellianism, narcissism, and psychopathy—have been studied as an overlapping constellation known as the Dark Triad. Here, we develop and validate the Short Dark Triad (SD3), a brief proxy measure. A structural analysis yielded three factors with the final 27 items loading appropriately on their respective factors. And another study confirmed that the resulting SD3 subscales map well onto the longer standard measures. Together, these studies indicate that the SD3 provides efficient, reliable, and valid measures of the Dark Triad of personalities.*

## **Keywords**

*subclinical, Dark Triad, psychopathy, narcissism, Machiavellianism*

## I. INTRODUCTION

Short Dark Triad test (SD3) is a personality test that tells a person in which dark category he falls under, on the three dark personality traits- Narcissism, Machiavellianism, and Psychopathy. Our SD3 test asks 27 questions. At the end of the survey participants are assigned a dark personality on the basis of the points. A survey was done in January 2011 and the participants were asked to answer some questions. Their answers were recorded. A total of 18195 rows were recorded. Each row represents a participant. Each participant answered a total of 27 questions and answered in between 1 to 5.

Despite their distinctive theoretical roots, the literatures on three socially aversive personalities—narcissism, Machiavellianism, and psychopathy—have become so expansive that the distinctions have become muddled. As a result, some observers concluded that the three variables are interchangeable in normal samples. The term Dark Triad to encourage researchers to study the three traits in tandem: Only then can their distinctiveness be clarified. If studied alone, any observed correlates may actually reflect overlap with one of the other Dark Triad members. Although research on the triad has continued to expand (for a review, see Furnham, Richards, & Paulhus, 2013), some researchers may have been deterred by the combined length of the available measures.

Given the length of these instruments, it is understandable why some researchers may be reluctant to include all three traits in a single study. Even with the shortest versions of each construct, the total number of items is 65—still taxing when time and space are at a premium. For practical use, a valid

and reliable short measure of the Dark Triad is needed. That need motivated our development of the Short Dark Triad (SD3) scale.

### *Machiavellianism*

In introducing the concept into the personality literature, Christie and Geis (1970) were primarily influenced by the political strategist, Niccolo Machiavelli (1513/1981). As a result, the popular Mach-IV items include cynical worldview, lack of morality, and manipulateness (see, review by Fehr, Samsom, & Paulhus, 1992). The more recent review by Jones and Paulhus (2009) also drew attention to a neglected predecessor, namely, the first-century military strategist, Sun Tzu (Shibing & Duyvendak, 1998). Along with themes similar to Machiavelli's, Sun Tzu added planning, coalition formation, and reputation building. The latter qualities turn out to be important in distinguishing psychopathy from Machiavellianism. Whereas psychopaths act impulsively, abandon friends, and family, and pay little attention to their reputations (Hare & Neumann, 2008), Machiavellians plan ahead, build alliances, and do their best to maintain a positive reputation. When overlap is controlled, research has supported these assertions: Machiavellians are strategic rather than impulsive (Jones & Paulhus, 2011a). They avoid manipulating family members (Barber, 1998), and any other behavioral tactics that might harm their reputation, for example, feigning weakness (Shepperd & Socherman, 1997). In sum, the key elements of Machiavellianism appear to be (a) manipulateness, (b) callous affect, and (c) a strategic-calculating orientation. This last element is often overlooked by researchers.

### *Narcissism*

As the seminal sources for their review, Jones and Paulhus (2011b) drew on Kernberg (1975) and Kohut (1978). Both those sources argued that narcissistic behavior was marked by manipulation and callousness, much like Machiavellianism and psychopathy. Intrapsychically, however, narcissism was defined by a clash between a grandiose identity and underlying insecurity.

### *Psychopathy*

Seminal researchers (Cleckley, 1941/1976; Hare, 1970; Lykken, 1995) have pointed to two key elements of psychopathy—deficits in affect (i.e., callousness) and self-control (i.e., impulsivity). The self-control deficit has remained central to criminal (Hare & Neumann, 2008; Hicks et al., 2007) as well as noncriminal conceptions of psychopathy (Hall & Benning, 2006; Lebreton, Binning, & Adorno, 2006). Consequently, psychopaths manifest their callousness in a short-term fashion (Jones & Paulhus, 2011a; Visser, Bay, Cook, & Myburgh, 2012). For example, they lie for immediate rewards, even if those lies compromise their long-term interests<sup>1</sup> (Paulhus & Jones, 2012). Thus callous manipulation combines with other short-term traits (i.e., recklessness, and thrill seeking) to engender bold and relentless criminal behavior (Hare & Neumann, 2008). The element of impulsivity is key in distinguishing psychopathy from Machiavellianism and influenced our item selection for the SD3. Our emphasis on impulsivity renders our conception closer to secondary than to primary psychopathy (Hicks et al., 2007; Newman, McCoon, Vaughn, & Sadeh, 2005).

## II. Related Works

Build a machine learning model which learns from the dataset and is able to identify a person's dark personality class on the basis of their answers. SD3 test to investigate the relationships between the Dark Triad traits and various outcomes, such as job performance, social relationships, and mental health.

### III. Methodology

SD3 test asks 27 questions. Each questions have 5 options.

The Options are:

- Disagree (1)
- Slightly disagree (2)
- Neutral (3)
- Slightly agree (4)
- Agree (5)

Each options have their own points. At the end of the survey participants are assigned a dark personality on the basis of the points.

#### *Machiavellianism*

1. It's not wise to tell your secrets.
2. I like to use clever manipulation to get my way.
3. Whatever it takes, you must get the important people on your side.
4. Avoid direct conflict with others because they may be useful in the future.
5. It's wise to keep track of information that you can use against people later.
6. You should wait for the right time to get back at people.
7. There are things you should hide from other people to preserve your reputation.
8. Make sure your plans benefit yourself, not others.
9. Most people can be manipulated.

#### *Narcissism*

1. People see me as a natural leader.
2. I hate being the center of attention. (R)
3. Many group activities tend to be dull without me.
4. I know that I am special because everyone keeps telling me so.
5. I like to get acquainted with important people.
6. I feel embarrassed if someone compliments me. (R)
7. I have been compared to famous people.
8. I am an average person. (R)
9. I insist on getting the respect I deserve.

#### *Psychopathy*

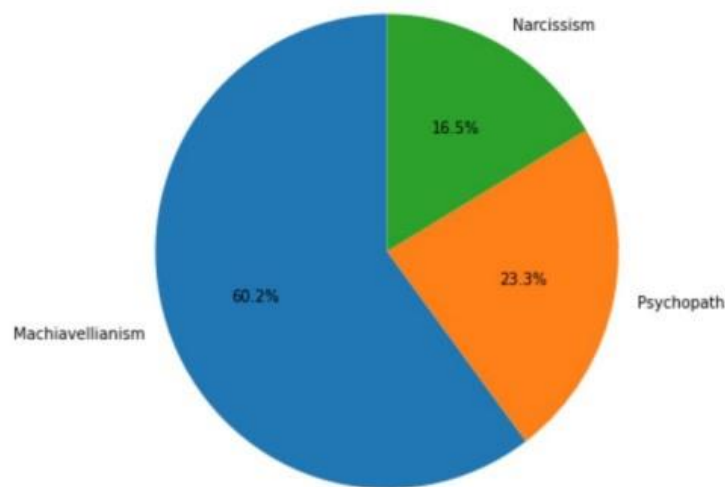
1. I like to get revenge on authorities.
2. I avoid dangerous situations.
3. Payback needs to be quick and nasty.
4. People often say I'm out of control.
5. It's true that I can be mean to others.
6. People who mess with me always regret it.
7. I have never gotten into trouble with the law. (R)
8. I enjoy having sex with people I hardly know
9. I'll say anything to get what I want.

Note. The subscale headings should be removed before the SD3 is administered.

## IV. Result Analysis

In our dataset there are 18192 rows and 29 columns. But we drop two of the columns named country and source which are not needed. There are no null values in this dataset. It basically shows the ratings of people for the questions to find the measure of the Dark Triad. Bar chart for the ratings of different questions: For the question answer, here are the bar chart of the ratings for those questions. Here, 1=Strongly disagree,2=disagree,3=neutral,4=Agree and 5=Strongly agree.

### Chart for Identifying Ultimate Result:



Here, the pie chart shows the total percentage for each characteristic. Here, we can see the 60.2% people of this dataset are Machiavellian, 16.5% are Narcissist and 23.3% are Psychopath. So, it is clear here that most of the people are Machiavellians and the lower are Narcissist.

#### *Machine Learning Models*

**Logistic Regression:** Logistic Regression is used for classification and predictive analysis. Logistic regression predicts the probability of an event based on the independent variables. Using the probability, we can classify between one or two classes. As logistic Regression outputs a probability of an event, the output is always between 0 and 1.

**SVM (Support Vector Machine):** Support vector machine is a supervised Machine Learning algorithm. It is used for classification. Unlike Logistic regression, SVM doesn't output the probability of an event occurring. Instead of calculating the probability of an event occurring, SVM tries to draw a decision boundary between datapoints. It is done so that when a new data point is given, we can easily put this datapoint in a correct category. The decision boundary that is being drawn can be N dimensional depending on the input variables. The best decision boundary is called hyper plane.

	<b>Logistic regression(With built in library function)</b>	<b>Logistic regression (Without built in library function)</b>	<b>Support Vector Machine(With built in library function)</b>
<b>Accuracy</b>	1	0.9618908024917552	1
<b>Precision</b>	1	0.962162961195319	1
<b>Recall</b>	1	0.9618908024917552	1

## V. General Discussion & Conclusion

This report has described the creation and preliminary validation of the SD3 questionnaire. After a review of the seminal literature, we generated items, subjected them to a variety of analyses, and found support for their differentiation into the expected three factors. To represent them, we formed three 9-item composites, and examined their external correlates. Our four studies suggest that the SD3 achieves an optimal compromise between instrument brevity and respectable reliability and validity. Using a variety of approaches, we showed that the SD3 subscales provide useful proxies for the established Dark Triad measures they were meant to replace. We confirmed that the three subscales fell in the theoretically appropriate circumplex locations and provided full coverage of the classic constructs. Gender differences paralleled those of the longer measures. Of particular importance, we demonstrated external validity by showing that the SD3 scales predicted corresponding informant-ratings. Hence, the Dark Triad constructs are not just artifacts of self-report variance.

There are three trained models. 1. Logistic regression (With built in library function) 2. Logistic regression (Without built in library function) 3. Support Vector Machine (With built in library function)

### *Challenges*

1. Time Consuming: Splitting the dataset into independent variables (X) and dependent (Y) variables and iterating over each row using `iloc []` was easy. But using `iloc []` to iterate over rows was slow. Iterating over all the rows and completing 1 epoch took: 1 Min 6 Seconds. We needed to come up with a way to iterate over rows more efficiently. So we decided to convert the pandas DataFrame to python List using the function `to_list()`. This reduced the time to iterate over all the rows and complete 1 epoch to: 7 Seconds.

Then after reading some documentation in the internet. We decided to convert the DataFrame to Numpy Array. This reduced the time to iterate over all the rows and complete 1 epoch to: 0.5 Seconds

2. Create Hypothesis function that works for any model: In our dataset we had 3

classes. Which were: M, N, P. So, we had to create 3 different models:

- M vs Rest
- N vs Rest
- P vs Rest

So instead of writing hypothesis function for each model separately we had to come up with a hypothesis function which will take independent variables and the weights and will return a Y predicted value.

3. Saving Models Weights: Due to google colab not allowing a cell to execute for a long time we could not complete 2000 epochs in a single run.

So we decided to perform 500 epochs on each model 4 times (  $4 * 500 = 2000$  ). But each time we run the model it starts training from the beginning. So had to come up with a way of saving our weights and later start training on the previous generated weights.

#### Comments:

1. From this project we could learn how to build a model with both library function and

without library functions.

2. We learned how to visualize data

3. We could have done better while building Logistic Regression model from scratch by

scaling and normalizing data.

4. Yet, the accuracy of the model we have build from scratch is good. Which is more than

96%. Therefore, we can say that, the model has been trained well.

5. We could not show the decision boundary in the support vector machine. As there are multiple features and for that we could not show multidimensional decision boundary.

## VI. Future works and Opportunities

1. *Convert to dictionary*: Even to one epoch took around 0.5 Seconds. It was a huge improvement when comparing to over initial epoch time which was 1 min 6 seconds. But articles in the internet shows that converting Dataframe to Dictionary will reduce iteration time more. It is even less than Numpy Array. 2. *Scaling*: We did not perform any kind of scaling in our dataset. Scaling data makes impact on the model's accuracy.

3. *Normalization*: We did not perform any kind of normalization in our dataset. Normalizing also makes impact on the model's accuracy.

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