Development of Brief Machiavellianism Scale (BMS-06)

Sandeep*, Tajbina Yasin, Rohit Kumar Maurya

Department of Psychology, Rajiv Gandhi University, Itanagar, Arunachal Pradesh, India. *Corresponding Author's Email: sandeep.panchal@rgu.ac.in

Abstract

The purpose of this study was to develop an indigenous brief scale of Machiavellianism among working population. Initially, a pool of 70 items was generated which was formed through focused discussion with a group of some randomly working people. Furthermore, their verbatim was compiled and phrases and with that three domains were formed. Again, the items that were found repetitive and dubious were dropped down keeping only 50 items. Later on, those 50 items were reviewed by the experts as per the item review method based on its content, grammar and sentence formation. It was reduced later to 27 items excluding repetitions. This new measure was then developed and validated over two studies. In study 1, the 27 items were administered on 200 new participants as a self-report measure on a 7-point rating scale. The sample for the study was selected from different working sectors using random sampling technique. Maximum Likelihood factor analysis revealed two factors which were labelled according to their emerging themes like Self Interest and Emotionally Manipulative. The inter scale correlation between the retained factor were significant and Cronbach Alpha showed a satisfactory reliability. In study 2, this scale provided evidence for the convergent and divergent validity of the BMS-06. The tool can be used on working population in order to determine their Machiavellian trait and also an insight can be drawn about the working culture which may or may not encourage this trait within individuals.

Keywords: Machiavellianism, Test construction, Validation, Standardization.

Introduction

The idea of Machiavellianism is stated under the concept of personality trait which describes it to be the use of manipulation to achieve power. The phrase "the end justifies the means" was quoted by Niccolo Machiavelli in his book which he wrote in the year 1513, 'The Prince', which described about a ruler and his ability to update his manipulative skills, adopt interpersonal strategies like flattery, lying and should come up with certain agendas and effective tactics to scoup others. Richard Christie, noting parallels between Machiavelli's political strategies and everyday social behavior, and his colleagues at Columbia University identified a corresponding personality syndrome, coining the term "Machiavellianism" for it. This label was chosen to encompass a deceitful interpersonal style believed to stem from a broader framework of cynical beliefs and pragmatic morality (1). Machiavelli thought that being feared was a better option than being loved if one had to choose between the two. It describes the range which people adapt to imply dishonest tactics to benefit their own interests and justify such actions by holding a poor opinion of human nature (2). This trait as described further in the book holds an urge to display power and how rulers indulge in the manipulative behaviour towards their subordinates for certain selfish reasons. Previous studies claim that Machiavellian people possess the capacity to emotionally distance themselves from emotionally charged events while yet being able to comprehend other people's points of view without being emotionally invested in them. Machiavellians would typically help others out if they felt they should be compensated. Individuals with a high Mach personality are defined by their strong desire of achievement. They are more driven by money, status, power and competition perceiving them as avenues for optimal long-term gains which they intend to attain at any cost. Moreover, High Mach individuals display an external locus of control attributing to the control of people's behaviour and situations determining the environment or external situations (3). Hence these individuals can be described as lacking moral values, overly

exhibiting the qualities of a sinister, manipulative, egoistic. They perceive the world as a competitive place where the strong ones should dominate the weak and seizing the opportunities of others without strict adherence to social norms. They are willing to exploit others but avoid overt aggression as it could jeopardize their long-term plans (2, 4, 5). The main features that need to be pinpointed which gives a better exploration on the nature of this concept of Machiavellianism are as follows:

- A cynical approach is adopted towards everyone.
- Individuals becomes solely invested in fulfilling their own needs and demands
- Employs the manipulative tactics in one's behaviour to secure interests.
- Erases the line between ethical and unethical behavior and can go to any extent for their own benefits.

Machiavellianism plays a contrast and compare strategy with psychological disorders. This trait is very commonly found in the working population as they compete with one another and also stays in a stressful environment, always proving themselves in front of their superordinate. This behavior can also obstruct in attaining a high sense of well -being (6). In the present circumstances, the evolution of political, economic, and social domains, both at the interpersonal and international levels involving states, regions, and individual interactions, there is a noticeable escalation in the severity and tension of communication issues wherein certain individuals manipulate others. This is an example of Machiavellianism. Social relationships and conflicts inherent in diverse societies at various developmental stages significantly shape an individual's personality. The combination of genetics and the living environment (comprising social relations, values, norms, attitudes, and behavioural rules) plays a crucial role in structuring an individual's activities, influencing both the personal and societal levels. In examining Machiavelli's perspective on social interaction and human nature, it is essential to contextualize these ideas within his broader views on fundamental ethical issues (7). There are some significant earlier researchers as they compared the conventional Machiavellianism scales, the Five-Factor Machiavellianism Inventory (FFMI) was a more accurate predictor of agentic career success. Career success was indirectly predicted by planfulness but was not predicted by animosity, either directly or indirectly (8). Researcher demonstrated that both professional envy and Machiavellianism significantly reduce both individual and group research productivity (9). One of the study indicated the influence of Machiavellianism on tax evasion among self-employed or entrepreneurial taxpayers, including deceptive strategies, pessimistic attitudes, and disdain for traditional morals. The results stated that while pessimistic viewpoints have a detrimental impact on tax evasion, deceptive strategies and a disdain for morals have a beneficial effect. Cynical viewpoints are positively impacted by social environments (10). In another study it has been found that workplace bullying is positively correlated with Machiavellianism, indicating that bullying does not significantly predict Machiavellianism. However, organisational culture does play a role in this relationship (11). In earlier studies using standard measures of Machiavellianism, researchers discovered that persons exhibiting high levels of the trait characterise their targets as impulsive, reckless, undisciplined, lax, and unambitious (12). Nevertheless, a shortcoming of these conventional trait Machiavellianism measures is that they are unable to evaluate this trait construct to a sufficient degree (13-16).

Rationale of the test development

Machiavellianism refers to a psychological trait characterized by deceit, manipulation, and a lack of empathy. There is a belief that this trait can influence behavior and interactions within a workplace. The present researcher aims to explore the potential impact of a prevalence of Machiavellian qualities on an organizational demand and psychological environment as well the reaction towards these aspects. It is also to be observed that earlier scale of Machiavellianism developed by Christie and Gies in year 1970 known as Mach-IV consisted of 20 items. It basically determined the difference between who agrees and disagrees with Machiavellian attitude. This scale was developed based on the theory provided in the book "The Prince" by Nicollo Machiavelli and they have not used any factor analysis method. The reliability

of this scale was also not found to be satisfactory (17). In 2008, another Machiavellianism scale, the Machiavellian Personality Scale by Jason Dahling, Brian Whitaker, and Paul Levy, was introduced. This 16-item scale employed Exploratory Factor Analysis, consists of four dimensions: Distrust of others, Desire for Status, Desire for Control, and Amoral Manipulation. It has demonstrated good reliability and validity within a working population (18). Additionally, the Two-Dimensional Mach-IV was developed by Monaghan, Bizumic and Sellbom in the year 2016 and it was formed through Confirmatory Factor Analysis. This scale is a 12-item scale and were considered to be not reliable enough to use in different studies (19). Recognizing the need for a concise tool, the Brief Machiavellianism Scale-(BMS-06) focuses on two core domains: One is Self Interest and second one is Emotionally Manipulative. It is designed to be practical for quick administration and has generalized items suitable for adults aged 20-40. Through rigorous empirical testing, this study seeks to establish a scale with high validity and reliability. This new measure aims to shed light on how Machiavellian behavior impacts workplace interpersonal connections, communication styles, and team dynamics.

Methodology

The concept of Machiavellianism has been introduced fairly and as it has reflected above in the definitions which shows the potentiality of it to come up with a shorter and more empirical questionnaire termed as the Brief Machiavellianism Scale. In the sections of the research, we will discuss how BMS 06 has evolved. This will include an explanation of how it was developed and validated through a series of investigations. Developing valid measurements is crucial in scientific research to ensure accurate data collection. The process of creating the survey scale involves steps; (I) carefully generating items, with expert input and feedback incorporated as necessary; (II) assessing the scales content validity by ensuring that the items truly reflect the essence of the Brief Machiavellianism scale; (III) evaluating internal consistency using measures such as Cronbach's alpha or split half consistency; (IV) testing for convergent validity; and (V) testing,

for discriminant validity to determine how well the concept differs from others. These steps were effectively followed in studies conducted to develop the Brief Machiavellianism scale.

Objective

- To develop a short tool on Machiavellianism on the Indian sample by using the factor analysis method.
- To find out the reliability and validity of Brief Machiavellianism Scale (BMS- 06) Further the details description of the scale can be understood in terms of two phases:

Phase 1: Exploring the items: The purpose of this study was to explore the concept of Machiavellianism in the working population. For this, some working people were randomly selected, they were briefed about the concept and asked them to give their opinions through focused discussions. Their responses were recorded and later were transcribed verbatim. So initially a pool of 70 items were formed, after their verbatim were compiled as phrases items were finalised so that it can be fitted into the dimensions and accordingly reframing of the items were done and those found to be repeating, dubious or ambiguous were dropped. A total of 50 items were created.

Phase 2: Empirical validation: The aim of phase 2 of this study, a list of 50 items was given to experts having a minimum of two to three years of experience in the field of research. The experts were asked to review each item on the basis of three methods:

- Grammer: Items were checked whether or not they were expressed clearly and concisely, avoiding poor grammar, complex syntax, ambiguity and double negatives.
- Sentence formation: Items were checked to see whether or not the items are in the form of a question or of a statement. Also, they were checked to see whether they are presented in a positive form or not.
- Content validity: It is often referred to as logical validity, and it describes how well a measure captures all the aspects of a certain social concept. As a result, objects were examined to make sure they were measuring the intended things.

The items were then reviewed again and the required changes were incorporated. A total of

27 items were kept in the form of close ended, statement form and response ranges from 7-point Likert's scale.

Study 1: Initial adaptation of brief machiavellianism scale (BMS-06)

Sample

Sample size: A preliminary sample were considered from the working population and since it was a pilot study a moderate sized sample were taken of 200 respondents from all over the country out of 75% working population in India as per the Centre of Monitoring Economy (20).

Demographics: The participants were chosen to represent various socio-economic backgrounds and diverse sectors. Importantly, they were not categorized based on the nature or structure of their jobs. The inclusion criterion was simply that participants had to be employed to a recognized institution and they should be able to understand the English language in order to fill out forms which was distributed through Google forms, email surveys and hard copies. This approach provides a wide area on intake of the working population and also accommodates participants with diversified preferences and access to technology as well.

Sampling technique: The participants were reached out through purposive sampling technique, thus, enabling the idea of intentional selection of individuals drawing out a specific criterion of being a part of the working population.

Age range: The age range of the study's target population was specified as 20 to 40 years. This criterion helps to focus on a specific age group, providing a more homogeneous sample for the initial testing phase.

Data collection method

The data was collected by distributing the 27-item questionnaire to the intended sample. A 7-point Likert scale, ranging from "strongly disagree" to "strongly agree," was used by respondents to indicate how they felt about each topic in the survey, which was conducted mostly through the use of questionnaires.

Procedure

Primary data were collected and tabulated. Subsequently, the collected data was analyzed using statistical methods like Factor Analysis was used which is a common method to examine the factor loadings of items and identify the potential factors. In this study the Maximum Likelihood Method of Factor Analysis within the SPSS software. Items with factor loadings above .30 were retained, while those with multiple factor loadings were excluded. The correlations between these selected items and the two retained factors of the scale were statistically significant at the 0.01 level. From the initial 27 items, only 6 items were chosen based on their high correlation and substantial factor loadings for inclusion in the final version of the scale which are to be discussed in the results in the Table no. 1, 2, 3 and 4. After that the Reliability Analysis were to be carried out of BMS-06 on 200 respondents which measures the internal consistency of the scale through Cronbach's alpha shown in Table no. 5. The descriptive statistics were also used to determine the summarization of the key features of the sample shown in Table no. 6. Out of all the dimensions only two was retained and it has been discussed as per their operational definition below:

I. Self interest

It defines the fact that each and every human being, is much more deeply interested in whatever immediately concerns to them, than in what concerns to any other person (21). Hence it is considered to be one of the major factors describing the essence of the concept of Machiavellianism. The main characteristics of self-interest tends to focus on their own selves and make their work done earlier even by surpassing others.

II. Emotionally manipulative

Emotional manipulation refers to the act of influencing someone else's emotions to serve one's personal interests (22). When contemplating the idea that individuals might have an inherent inclination toward manipulative behavior, it immediately evokes the concept of Machiavellianism (Mach). People displaying this trait employ manipulative tactics to further their own agenda while maintaining emotional detachment in their interactions. Their approach is characterized as cognitive rather than emotional, and they tend to overlook individual differences (23).

Study 2: Standardization of the brief machiavellianism scale (BMS-06)

In order to find out the validity, reliability of the Brief Machiavellianism Scale (BMS-06), it was distributed to a working sample of 155 participants. The data was collected through google forms and it was spread out in the platforms of WhatsApp, LinkedIn, Facebook and emails. The age range was kept within 20-40 years an above who are actively working in different sectors and workplaces. The method of collecting data by using purposive sampling technique.

Results

Results of study 1

The aim of the current study was to construct a brief version of Machiavellianism by using the factors analysis method by using Maximum Likelihood method. Through this method the factor structure of the scale is determined, and it will provide an insight about the factors that were retained and through factor loadings, the items which were considered to be kept in the final scale are discussed below. Table 1, represents that the KMO in the current test is 0.726> 0.5, indicating a great value; thus, factor analysis can be further continued.

Table 1: Factorial validity of KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.726
Bartlett's Test of Sphericity	Approx. Chi-Square	778.46
	Df	231
	Sig.	.000

Table 2: Items are extracted together with their Eigen values, percentage of variance and cumulative

Factor along with item Numbers	Eigen value	Variance Percentage of Eigen value	Cumulative Variance Percentage
2	3.802	17.283	17.283
3	2.084	9.472	26.754
4	1.779	8.086	34.840
5	1.445	6.568	41.408
7	1.202	5.463	46.871
8	1.136	5.166	52.037
10	1.085	4.932	56.968
11	.889	4.040	61.008
12	.843	3.833	64.841
13	.817	3.714	68.555
14	.807	3.668	72.223
15	.750	3.411	75.635
16	.714	3.245	78.880
19	.661	3.005	81.884
20	.628	2.854	84.738
21	.606	2.753	87.491
22	.566	2.575	90.066
23	.536	2.435	92.501
24	.481	2.187	94.688
25	.444	2.018	96.707
26	.398	1.811	98.518
27	.326	1.482	100.000

* Communalities table was extracted after running factor analysis four times as we had to delete item no. 1, 17, 6, 9 and 18 respectively.

From Table 2, it can be observed that the items that were retained within the factors are further included for the factor rotation. The items have eigen value more or less equal to 1 as per the Kaiser rule. Items having eigen values above 1 gives us the choice of retaining that item for further analysis. These findings collectively indicate that out of 27 items these 22 items

identified in this dataset have the remarkable ability to predict a total of 100% variance of the observed changes in determining the retaining of factors for this scale.

From Table 3 it is shown that as per the Extraction Method used which is Maximum Likelihood, these 6 items were retained because it had highest factor loadings in it as compared to other items. These items have been retained after 5 iterations and falls under the domains of Self Interest and Emotionally Manipulative respectively.

From Table 4, it is shown that as per the Extraction Method used which is Maximum Likelihood, these 6 items were retained because it had factor loadings above 0.40 to less than 0.70. These items fall under the domains of Self Interest and Emotionally Manipulative respectively.

1. Self interest: Self Interest is measured by items16, 20 and 21. These are " I like to socialize only with important people, " One should only help others if others help them, " It is okay to use someone's personal information, if needed". This factor explains 6.6 percent variance with a factor loading of the items above 0.4 and less than 0.7 respectively.

2. Emotionally manipulative: Emotionally Manipulative is measured by items 7, 13 and 22. These are " Emotionally weak people are meant to be exploited", "I feel I am emotionally withdrawn", "Generally speaking, display of emotions is a sign of weakness." This factor explains 9.7 percent variance with a factor loading of the items above 0.4 and less than 0.7 respectively.

The reliability coefficient was assessed using Cronbach's Alpha method on a sample of 200 participants. For the first dimension, Self-Interest, the obtained reliability coefficient was .69, indicating a satisfactory level of reliability. Similarly, the reliability coefficient for the second dimension, Emotionally Manipulative, was found to be 55, which is considered satisfactory (Table 5).

From the Table 6, we can see that in both the domains it is observed that the mean of male participants is more than the mean of female participants and through this we can understand that the responses of male played a greater impact on the variance of the total construct.

The correlations between these selected items and the two retained factors of the scale were statistically significant at the 0.01 level. From the initial 27 items, only 6 items were chosen based on their high correlation and substantial factor loadings for inclusion in the final version of the scale (Table 7).

Table 3: Factor matrix

	Factor						
	1	2	3	4	5	6	7
Item7	.426	.262		-.286	.312	.205	
Item13	.227	.383					
Item 16	.517	-.249			-.363		
Item 20	.619	-.235				.221	
Item21	.558	-.304	-.211				
Item 22	.392	.505					

Table 4: Pattern matrix (Maximum likelihood method)

	Factor						
	1	2	3	4	5	6	7
Item7		.638		-.258			
Item13		.463					
Item 16	.694						
Item 20	.656						
Item21	.482		-.222				
Item22		.549				-.249	

Table 5: Reliability index

S.No.	Dimensions	Cronbach's Alpha (n=200)	Number of items
1	Self Interest	.69	3
2	Emotionally Manipulative	.55	3

Table 6: Descriptive statistics

Factors	Gender	N	Mean	Std. Deviation	Std. Error Mean
Self Interest	Male	120	8.90	4.17	.38
	Female	80	8.26	4.05	.45
Emotionally	Male	120	11.27	3.90	.35
Manipulative	Female	80	10.80	4.29	.48

Table 7: Correlation matrix

S. No.	Factors	Self Interest	Emotionally Manipulative
1	Self Interest	1.000	.203
2	Emotionally Manipulative		1.000

Results of study 2

In study 2, the Brief Machiavellianism Scale (BMS-06) was evaluated for validity and reliability in the primary analyses. Split half dependability and Cronbach's alpha were used to analyse the internal consistency. Zero-order correlations between the BMS and the other measures were used to evaluate convergent validity. The results of the stated statistical analyses are represented in the Table 8: Descriptive Statistics, table no. 9: Reliability, table no. 10: Correlations of BMS-06 with other measures in order to determine convergent and discriminant validity, below respectively.

The Table 8 represents that both male and female are having an equal margin of participating in the study 2 and the mean of male and female are 20.3 and 16.4 respectively which reflects that males slightly have a higher tendency towards attaining the Machiavellian trait in them then compared to females.

Table 8: Descriptive statistics

S.No.	Variable	Gender	N	Mean	Std. Deviation	Std. Error Mean
1	BMS (06)	Male	78	20.3590	6.59196	.74639
		Female	77	16.4286	5.03521	.57382
2	Self Interest	Male	78	10.4615	4.06982	.46082

		Female	77	8.3896	3.32912	.37939
3	Emotional Manipulative	Male	78	9.8974	3.56604	.40377
		Female	77	8.0390	3.46957	.39539

Table 9: Reliability

S.No.	Cronbach Alpha	Cronbach Alpha on standardized items	No. of items
1	.733	.76	6

Table 10: Correlations between Brief Machiavellianism Scale with other measures

Variables	Mach -IV	BMS (06)	Phq9
Mach -IV	1	.298	.313
BMS (06)		1	.303
PHQ9			1

Cronbach Alpha is one of the most used dependability metrics in the social sciences. It basically describes the internal consistency of a measure. The Cronbach *a*, if the reliability value is less than (.65), it is considered unacceptable and if it is high than (.85) as it is considered excellent (24). The above Table 9 reflects the inter correlation of the items through Cronbach Alpha. The reliability value was found to be .733 of 6 items on 155 population, implying a satisfactory reliability. Another method used is Guttman split half and the reliability value is .80 which also indicates a high reliability among the items as a whole.

Validity

Judges validity: It is regarded as the most straightforward way to assess a test's validity. In this scale, this approach was employed to evaluate the validity of the Brief Machiavellianism Scale. It involved experts assessing whether the test items accurately represented the intended objectives and content areas. Before undergoing item analysis, the items were reviewed by several experts. Each expert independently evaluated the scale items. Only the items that received consensus from the majority of experts were included in the initial steps of determining the scale. These selected items were anticipated to be associated with specific dimensions of the scale. A brief examination of the item content confirmed the validity of the scale.

The initiatives taken to assess the convergent and discriminant validity of BMS-06 were that two tools were used namely Mach-IV (1970) and Patient Health Questionnaire respectively (25). The above Table 10 shows the zero order correlations between Brief Machiavellianism Scale with the above mentioned scales to check its validity. The scale BMS-06 is considered to have a positive correlation with Mach -IV where r =.29. which is highly significant at 0.01 level. This is because the Brief Machiavellianism Scale and Mach -IV have a similar intention to assess the Machiavellian trait in an individual adhering to convergent validity of the BMS- 06. On the other hand, to assess the discriminant validity of Brief Machiavellianism Scale with Patient Health Questionnaire where, r = .30, which is also significant at 0.01 level as both these scales were considered to be different in its context but they were also found to be significant.

Discussion

The current study is to develop a new tool titled as, 'Brief Machiavellianism Scale' (BMS-06). This scale will determine the underlying manipulative tendency of an individual and exploiting others in order to attain the maximum gain for oneself. This scale is linked with Self-interest and Emotionally manipulative as two domains which reflects about the Machiavellian trait of an individual. In order to formulate the scale BMS-06, two studies have been incorporated. In study 1, the initial

adaptation of the scale from 70 items to 50 items were done through item review and from 50 item it was reduced to 27 items through item analysis method. Accordingly, three factors were also formed and the 27 items scale was analysed through factor analysis method on 200 samples. This scale was then reduced to 6 items adhering to the procedure of Maximum Likelihood and items which had highest factor loadings were retained in the scale and accordingly the final items of BMS -06 was formed. The reliability and inter correlation between the factors were found out. It was observed that it had a satisfactory reliability and had correlated on a 0.01 level of significance. In study 2, the standardization of the scale was done through validity and reliability. Firstly, it has been processed by collecting data of BMS-06 on155 participants and it has been observed that the reliability value is taken out by Cronbach a (0.73) and Split half reliability (0.80). it determines that the scale has a satisfactory reliability (24). Secondly, the scale has a face validity which as it intends to measure what it measures, because in the initial process the scale has been reviewed by the experts. The convergent validity has been determined by establishing a positive significant relationship with BMS-06 with Mach-IV (r= 0.29) which implies a similar construct and partialling out the Patient Health Questionnaire which stands out to be a different construct than BMS-06. But it can also be observed that the discriminant validity has also established a positive correlation with Machiavellian trait and is significant at 0.01 level of significance. This could be reflected through the concept of Dark Triad which has components of Machiavellianism, psychopathy and narcissism as these three are related to each other but also has certain socially distinctive traits, and Patient Health Questionnaire is a depression module and depression is a spectrum of mental health disorder (25, 26). This implies that many studies have taken an approach in identifying a distinct relationship of Machiavellianism with Psychopathology and it showed that Machiavellian views primarily predicted depression. It has also been stated in the study that the Mach-IVs was unable to measure the construct (19). Having said that the Brief Machiavellianism Scale is a short tool of 6 items which will assess the Machiavellian trait of an individual through two dimension which are Self Interest and Emotionally Manipulative. These reflects the core understanding of Machiavellians. These two factors have not been previously used in any of the existing tools and hence given a renewed attention on it by developing a reliable and practical measurement scale. The significance of this scale is that it can be used in understanding the workplace behaviour which will benefit both employers and researchers in forecasting and managing performance, satisfaction, and other outcomes related to the working field and the competitive aspect of an individual. It has the potential to be used in a range of industries and professional settings. This makes it quite valuable when it comes to comprehending inclinations, in organizational scenarios, including both corporate environments and non-profit organizations. The decision not to classify participants based on the nature or structure of their jobs enhances the scale's applicability across a wide range of job types. It ensures that individuals from different professions and roles can be assessed using the BMS-06. This could be advantageous for organizations or researchers focusing on understanding Machiavellianism in young to middle-aged adults.

Conclusion

The inclusion of participants from various socio-economic backgrounds in the sample ensures that the scale has been tested and validated across different economic strata. This speaks to its potential to be used in settings with diverse socio-economic conditions.

Abbreviation

Abbreviation used in the manuscript is BMS-06 which is Brief Machiavellianism Scale.

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Conflict of interest

There is no conflict of interest between the authors.

Author contributions

Ethics approval

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