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Brief Report

Providing a psychological scale to measure COVID-19 phobia in the Indonesian version: a brief report on validation of C19P-S via Rasch Analysis

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Abstract: Specific phobias such as COVID-19 are new and are believed to have developed rapidly since the beginning of the Pandemic established by the WHO in March 2020. Unfortunately, the development of psychological measurement tools related to COVID-19 Phobia is still inadequate in Indonesia. This study aims to validate the Indonesian version of the Phobia scale against COVID-19 (C19P-S). It was recorded that 220 respondents from various groups were involved in this study. The data collected were analyzed by means of the Rasch Model to determine the accuracy of the validated psychometric properties of the scale. The study findings show that the Indonesian version of C19P-S has sufficient psychometric properties and can measure phobia against COVID-19 in the sample group tested. Of the 20 items of the C19P-S, we recommend 18 items that are suitable for use by users of this scale.

Keywords: Corona, Phobia; Psychometric Properties; Rasch

Abstrak: Phobia yang spesifik seperti COVID-19 adalah hal yang baru dan dipercaya telah berkembang secara pesat sejak awal Pandemik ditetapkan oleh WHO pada bulan Maret 2020. Sayangnya, pengembangan alat ukur psikologis terkait Phobia COVID-19 masih belum memadai di Indonesia. Studi ini bertujuan untuk memvalidasi skala Phobia terhadap COVID-19 (C19P-S) versi Bahasa Indonesia. Tercatat 220 responden dari berbagai kelompok dilibatkan dalam studi ini. Data yang dikumpulkan dianalisis dengan Rasch Model untuk menentukan akurasi properti psikometrik skala yang divalidasi. Temuan studi menunjukkan bahwa C19P-S versi Bahasa Indonesia memiliki properti psikometrik yang memadai dan dapat untuk mengukur phobia terhadap COVID-19 pada kelompok sampel yang diujikan. Dari 20 item C19P-S, kami merekomendasikan 18 item yang fit untuk digunakan oleh para pengguna skala ini.

Kata Kunci: Corona, Phobia; Properti Psikometrik; Rasch

Introductions

In 2020 is a very painful year for countries in the world due to the spread of Corona Virus Disease 2019 (COVID-19). Various policies have been taken by countries affected by COVID-19 as a response measure and to reduce the rate of spread of COVID-19 including shutting down and limiting human activities (physical distancing, self-isolation and social distancing) and following the health protocol campaign issued by the World Health Organization (WHO). From various points of view, COVID-19 has drained a lot of energy, focus and resources from each country to reduce the impact felt by its people in different sectors of life since it was first discovered in December 2019 in Wuhan Province, China.

In Indonesia, the first case of COVID-19 was recorded on March 2, 2020, where two Indonesian citizens (a 31-year-old woman and a 64-year-old mother) tested positive for COVID-19 after making contact with Japanese nationals who came to Indonesia. This fact was

announced directly by the President of the Republic of Indonesia, Ir. H. Joko Widodo. This fact triggers a sense of "panic" and great concern in the community regarding the possible to be infected with COVID-19. Since then, the Government of Indonesia has begun to take concrete steps in the form of a policy called Large-Scale Social Restrictions (PSBB) throughout Indonesia and has re-focused Government activities to minimize the spread of COVID-19. There are three core protocols in the PSBB period, namely restrictions on entry permits (travel) to and from the territory of Indonesia; restrictions on the use of public transportation; and restrictions on face-to-face learning activities in educational institutions.

From March to October 9, 2020, the number of positive cases of COVID-19 in Indonesia that were confirmed through the Task Force for the Acceleration of Handling COVID-19 reached 324,658 peoples; where 247,667 peoples were declared cured, and 11,677 people died. The highest positive cases of COVID-19 are in the DKI Jakarta and its surrounding areas, namely Depok, Tangerang, Bogor, and Bekasi (Jabodetabek), which account for nearly 30% of the national cumulative total. As an area with a high population density, the number of schools in the Jabodetabek area is also the highest so that the potential for transmission is also estimated to be the highest. As a result, every individual in the Jabodetabek area is urged to increase awareness and follow the Health Protocol (PSBB) to prevent COVID-19.

During the PSBB period, Indonesian Government instructions such as, "Work from Home (WfH) and" Study from Home (SfH) "became very familiar and popular among the community. However, this poses a problem in itself where the transition to work and study from home forces everyone to make radical changes in their life. The shifting of life habits, whether at work or studying from home, coupled with the erratic conditions of the COVID-19 Pandemic, are tough and cause psychological health problems for the community.

The serious negative physiological, social and economic effects of the COVID-19 pandemic have been observed in many countries. These negative effects lead to conditions including stress, depression, psycho-somatic, and psycho-social disorders (Arpaci et al., 2020). Study conducted Daly et al. (2021) shows an increase in cases of depression during the COVID-19 pandemic in the U.S. Although it is known that health professionals are the group most at risk of experiencing psychological disorders (da Silva & Neto, 2021), however, this does not mean that non-health professionals are safer from the disorder. Study conducted by Ruiz-Frutos et al. (2021) shows that 71.6% of non-health female workers and 52.4% of male non-health workers experienced psychological distress during the COVID-19 pandemic. This shows that psychological health problems are a crucial point where solutions need to be sought, including synergies for handling inaccurate news related to the COVID-19 pandemic on social media which directly affects psychological health conditions (Zhong et al., 2021).

Psychological health measurement tools have been developed. Several measuring instruments or psychological scales were developed based on needs and adapted to the world situation and the development of psychology itself. Unfortunately, there is little empirical support for this category of specific phobias (Muris et al., 1999). Realizing how strong the influence of the COVID-19 Pandemic is on a person's psychological health, action is needed to identify the problem. At the practical level, the development of measuring instruments or psychological scales to measure specific phobias such as COVID-19 requires a long time. However, this does not mean it is impossible.

In the midst of the current pandemic situation, there are alternative ways that can be taken by developers of measuring instruments or psychological scales, namely adapting the scale. Several psychological scales developed to measure the relationship between the COVID-19 situation and the incidence of psychological disorders in humans have been available in various worlds such as (1) The Fear of COVID-19 Scale (Ahorsu et al., 2020; Reznik et al., 2020; Satici et al., 2020; Soraci et al., 2020), (2) Coronavirus Anxiety Scale (Chandu et al., 2020; Evren et al., 2020; Lee, 2020; Lee et al., 2020), (3) Stress of COVID-19 Scale (Feng et al., 2020; Pakpour et al., 2020), (4) COVID-19 Perceived Risk Scale (Yıldırım & Güler, 2020). Psychological disorders such as fear, anxiety, stress, and depression regarding COVID-19 have a special connection with specific phobic disorders, however the availability of measuring instruments or psychological scales for COVID-19 Phobia has only been documented by Arpaci et al. (2020), and has not been

found in Indonesian. The availability of the Phobia COVID-19 scale in the Indonesian version that meets the standards is expected to help users identify the level of specific psychological disorders (phobia) related to COVID-19.

Based on the previous description, this study aims to develop and adapt the Indonesian version of the Phobia scale against COVID-19. This research is also expected to provide empirical evidence of the results of language translation, psychometric validation and the development of the Indonesian version of the COVID-19 Phobia Scale (C19P-S).

Method

This study uses a quantitative approach and was carried out in September 2020 - January 2021. The translation procedure begins with a study of the latest literature related to phobia to COVID-19. Furthermore, the adaptation process of this scale involves one psychometric expert to weigh the instrument content qualitatively, and an Indonesian expert for the linguistic aspects used. Weighing the scale is done quantitatively with a limited field trial mechanism. Testing of the instrument in the Indonesian version was carried out on a limited basis and continued more broadly as the sample group was targeted in this study.

Data collection and instrument deployment are carried out with the help of Google Form. Furthermore, the data collection process also involved several volunteers assigned to designated area points to ensure data distribution was spread out and represented the needs of the research being carried out. Before collecting data, the respondents were given information and an introduction from the research team. There is no compulsion for respondents to participate in this research, and; all personal information of respondents is credential.

The COVID-19 Phobia Scale (C19P-S) developed by Arpaci et al. (2020) is the scale used in the translation and validation process in this study. C19P-S contains 20 items covering respondent responses regarding the presence or absence of disorders (1) Psychological, (2) Psycho-somatic, (3) Economic, and (4) Social.

Study conducted by Arpaci et al. (2020) shows that shows that C19P-S has good evidence of construct validity, convergent, discriminant, and internal consistency reliability. The C19P-S is a self-report instrument with fve-point Likert-type scale to assess the levels of coronavirus (COVID-19) phobia. All items are rated on a 5-point scale from "strongly disagree (1)" to "strongly agree (5)."

This study involved 220 respondents who were taken randomly and came from several regions in Indonesia. We mapped them into certain demographic aspects, such as age, gender, area of origin, exercise routine in one week, and experience of carrying out a Covid-19 test. The distribution of demographic aspects of the participants is presented in Table 1.

Table 1. Distribution of Participants based on Demographic Aspects

Aspek	N	(%)	*Mean*	*S.E*	*S.D*	*Reliability*
Gender						
Female	140	63.6	.83	.08	.87	.88
Male	80	4	.64	.19	1.61	.93
Age		36.3				
Under 25 Years Old	208	6	.74	.09	1.18	.91
Above 25 Years Old	12		1.23	.43	1.36	.92
Domicile		94.5				
Banten	4	5	.03	.40	.64	.86
Jakarta	45	5.45	.87	.17	1.09	.92
Jawa Barat	54		.53	.08	.51	.78
Jawa Tengah	4	1.82	.35	.50	.83	.90
Nusa Tenggara Timur	20	20.4	1.53	.35	1.45	.88
Papua	36	5	.94	.20	1.15	.92
Papua Barat	47	24.5	.54	.25	1.64	.92
Sulawesi Selatan	10	5	.82	.31	.88	.90

Marital Status		1.82				
Married	11	9.09	.68	.26	.78	.88
Unmaried	209	16.3	.77	.09	1.22	.91
Divorced	0	6	0	0	0	0
Sports Exercise Per Week		21.3				
Never	47	6	.93	.16	1.01	.91
Once in a week	100	4.55	.60	.14	1.34	.91
Twice a week	33		.81	.17	.90	.90
Three times a week	17	5.00	1.01	.32	1.24	.91
More than three times a week	23	95.0	.87	.26	1.18	.92
Experiences on Covid-19 Test		0				
Never	146	0.00	.76	.12	1.33	.91
Yes on Rapid Test Antibody	46		.91	.15	.93	.86
Yes on Rapid Test Antigen	12	21.3	.58	.30	.95	.92
Yes on PCR Test	16	6	.47	.14	.47	.76
		45.4				
		5				
		15.0				
		0				
		7.73				
		10.4				
		5				
		66.3				
		6				
		20.9				
		1				
		5.45				
		7.27				

Note: Mean, S.E., S.D., and Reliability are based on the calculation of the respondent's Covid-19 Phobia Score in the Rasch Model computation.

The initial stage of data analysis was carried out by scanning with the aim of seeing the quality of the data that had been collected. The quality of research data is determined by how big the respondents are outliers. Furthermore, the main analysis of this study was carried out with the Rasch modeling to provide an estimate of the psychometric properties of the Indonesian version of the COVID-19 Phobia Scale which includes (1) item and person reliability; (2) unidimensionality and rating scale analysis; (3) items and person difficulties; (4) biases item based on differential items functioning.

Result and Discussions

There is a large part of which is the subject of the validation process for the Indonesian version of the C19P-S.

Initial Screening

In this section we conduct an investigation to see the quality of the data that has been collected. The aim is to check the pattern of responses given by respondents to the C19P-S items that have been given, and also the appropriateness of the items. In the Rasch Model, the accuracy of the data collected and the suitability of the data to the ideal model are in the Outfit value range of 0.5 - 1.5 logit, where items and persons who have values outside that range can be detected as outliers (Sumintono & Widhiarso, 2014). The results showed that out of 220 respondents who filled in C19P-S, there were 100 respondents who gave inappropriate responses (outliers).

Meanwhile, of the 20 items C19P-S only 1 item (No.6 – *"Saya jengkel dengan orang-orang yang mengabaikan bahaya penyebaran virus corona*") including items that are outliers.

This empirical fact shows us that almost 50% of respondents tend to give "wrong" responses than they should. This also prompted us to use only 120 respondents and 19 C19P-S items for further analysis.

Reliabilities Item and Person

The C19P-S computation (N = 120, I = 19) shows that the reliability value of C19P-S for items (.99) and persons (.90) is in the very high category, with α Cronbach = .90. This shows that the items used in C19P-S have the ability to accurately define latent traits, namely Covid-19 phobia. Likewise, the reliability of the person indicates that there is consistency in the response pattern given by all respondents who fill in the C19P-S.

Another important finding that is also presented in this section is that the Separation Index value is able to classify the ability of respondents into three clusters (3.07) and 8 clusters (8.82) for C19P-S items. This indicates that both persons or items can properly map the conditions and levels of phobia experienced by the respondents with Covid-19.

Unidimensionality and Rating Scale Analysis

Unidimensionality test on C19P-S aims to evaluate whether the instrument which has developed are able to measure the measureable thing such as Phobia Covid-19. Table 2 shows that Raw Variance Explained by Measures as 60,6%, means that Unidimensionality condition of C19P-S is sufficient. On the other hand, C19P-S can be used to measure the scale of Phobia Covid-19.

Table 2. Raw Residual variance in Eigenvalue units of C19P-S (N=120, I=19)

	Eigenvalue	Observed	Expected
Total raw variance in observations	48.1623	100.0%	100.0%
Raw variance explained by measures	29.1623	60.6%	60.2%
Raw variance explained by persons	9.8751	20.5%	20.4%
Raw Variance explained by items	19.2872	40.0%	39.8%
Raw unexplained variance (total)	19.0000	39.4%	39.8%
Unexplned variance in 1st contrast	3.4950	7.3%	18.4%
Unexplned variance in 2nd contrast	2.3074	4.8%	12.1%
Unexplned variance in 3rd contrast	1.9117	4.0%	10.1%
Unexplned variance in 4th contrast	1.4562	3.0%	7.7%
Unexplned variance in 5th contrast	1.3501	2.8%	7.1%

Furthermore, the results of the rating scale analysis test show that the alternative answers offered in the Indonesian version of C19P-S are good and do not cause specific confusion for the respondents. Appendix I shows that empirically, there is an increase in the dynamic andrich threshold value.

Items and Persons Difficulties

In this section we test the difficulty level of items and people. Items difficulties aim to evaluate the level of items from the most difficult to the easiest. Table 3 shows that Item No. 8 *"Kekhawatiran saya terhadap virus corona membuat saya sulit bernafas"* (+2.18 logit) is the item most difficult to agree on by all respondents who filled out C19P-S. Instead, Item No. 2 *"Saya cemas jika ada keluarga dekat saya terinfeksi virus corona"* (-1.80 logit).

Table 3. Mapping the difficulty level of C19P-S items (N = 120, I = 19)

No.	Aitem of C19P-S	Measure
8	ID = *Kekhawatiran saya terhadap virus corona membuat saya sulit bernafas* EN = My concern about the corona virus makes it difficult for me to breathe	2.18
10	ID = *Saya mengalami gangguan tidur karena kondisi pandemik virus corona* EN = I have sleeping disorder due to the corona virus pandemic condition	2.05
9	ID = *Memikirkan virus corona membuat saya sakit kepala* EN = Thinking of the coronavirus gives me a headache	1.94
7	ID = *Memikirkan virus corona membuat perut / kondisi pencernaan saya terganggu* EN = Thinking of the corona virus upset my stomach / digestive condition	1.78
14	ID = *Saya membeli bahan makanan yang cukup banyak untuk cadangan kebutuhan hidup saya jika kondisi pandemi virus corona ini semakin memburuk* EN = I bought enough food to spare for my living needs if the corona virus pandemic conditions got worse	.60
15	ID = *Saya kuatir kebutuhan hidup saya tidak tercukupi selama pandemi virus corona berlangsung.* EN = I am worried that my life needs will not be fulfilled during the corona virus pandemic.	.22
16	ID = *Pandemi virus corona membuat saya mudah cemas ketika melihat orang lain batuk.* EN = The coronavirus pandemic makes it easy for me to worry when I see other people coughing.	.08
11	ID = *Aktivitas fisik yang biasanya mudah saya lakukan menjadi sulit ketika pandemi virus corona melanda lingkungan saya.* EN = The physical activity that I usually do easily becomes difficult when the corona virus pandemic hits my neighborhood.	- .19
12	ID = *Saya kuatir pandemi virus corona yang terus berlangsung akan mengakibatkan krisis bahan makanan* EN = I am worried that the ongoing corona virus pandemic will result in a food crisis	- .19
20	ID = *Dalam periode pandemi virus corona, sulit bagi saya untuk merasa rileks jika jarak (fisik) saya dengan orang lain terlalu dekat* EN = In the pandemic period of the coronavirus, it is difficult for me to relax if my (physical) distance from other people is too close	- .22
5	ID = *Penyebaran virus corona yang begitu cepat membuat saya panik* EN = The spread of the corona virus so fast makes me panic	- .33
17	ID = *Sedapat mungkin saya berupaya menghindari orang yang saya lihat mengalami bersin-bersin.* EN = As much as possible I try to avoid the people, I see sneezing.	- .44
13	ID = *Saya cemas alat-alat kesehatan/pengobatan/pelindung diri semakin sulit terjangkau di periode pandemi virus corona* EN = I am worried that medical / medical / personal protective equipment will become increasingly difficult to reach in the period of the corona virus pandemic	- .53
19	ID = *Pandemi virus corona membuat saya menghindari bertemu orang secara langsung (tatap muka secara fisik)* EN = The corona virus pandemic keeps me from meeting people in person (face to face physically)	- .54
4	ID = *Ketidakpastian informasi terkait virus corona membuat perasaan saya menjadi cemas*	- .79
3		-1.15
1		-1.24

No.	Aitem of C19P-S	Measure
18	EN = The uncertainty of information regarding the corona virus makes me feel anxious ID = *Saya merasa tidak nyaman dengan berita kematian akibat virus corona* EN = I feel uncomfortable with the news of the death from the corona virus ID = *Saya takut terinfeksi virus corona* EN = I am afraid of being infected with the corona virus	-1.43
2	ID = *Dalam situasi pandemi virus corona, saya lebih memperhatikan kebersihan tangan saya jauh dari biasanya.* EN = In the coronavirus pandemic situation, I pay more attention to my hand hygiene than usual. ID = *Saya cemas jika ada keluarga dekat saya terinfeksi virus corona* EN = I am worried if my close family is infected with the corona virus	-1.80

Measure in Logit.

Meanwhile, in the evaluation of persons abilities, it is known that Person No. 100 (100 M B PB UM B Never) is the person who has the highest level of phobia towards Covid-19 (+5.88 logit) when compared to other respondents. Instead, Person No. 84 (84 UM E Yes RT Antigen) is the person with the lowest phobia level towards Covid-19 (-1.04 logit). Information regarding the persons abilities distribution is presented in full in Appendix II of this article.

Differential Items Functioning (DIF)

Another important point of this study is to evaluate whether the items in the C19P-S are biased towards certain demographic groups. We include six demographic aspects in this study, namely (1) Gender, (2) Age, (3) Domicile, (4) Marital Status, (5) Sports Exercise Per Week, and; (6) Experiences on Covid-19 Test. Differential Items Functioning (DIF) item is identified if Prob. <.05. DIF analysis on the demographic aspects of the C19P-S 01 results there is no. That is, the potential DIF of the item is not identified. However, the sports exercise per week in point number 10, shows a DIF .0151.

Table 4 shows that of the 6 demographic aspects, item No. 10 *"Saya mengalami gangguan tidur karena kondisi pandemik virus corona"* which is biased towards one particular demographic aspect, namely Sports Exercise Per Week. Table 4 in detail shows that the phobic response pattern to Covid-19 does not work well with the respondents' length of exercise.

Table 4. DIF details on Sports Exercise Per Week (N=120, Item Number 10)

Aspect	Compared to	DIF Prob.	DIF Contrast
Never	Once in a week	.0600	-.70
	Twice a week	.5284	-.56
	Three times a week	.1573	.88
	More than three times a week	1.000	.38
Once in a week	Never	.0600	.70
	Twice a week	.4056	.14
	Three times a week	.1934	1.58
	More than three times a week	**.0435**	1.08
Twice a week	Never	.5284	.56
	Once in a week	.4056	-.14
	Three times a week	.3173	1.44
	More than three times a week	.5271	.94

Three times a week	Never	.1573	-.88
	Once in a week	.1934	-1.58
	Twice a week	.3173	-1.44
	More than three times a week	.3173	-.50
More than three times a week	Never	1.000	-1.08
	Once in a week	**.0435**	-.94
	Twice a week	.5271	.50
	Three times a week	.3173	.79

DIF item were identified if Prob. <.05 and DIF Contrast >.43 for each item in certain demographic aspects.

Table 4, the group of respondents who had sports activities once and more than three times a week gave different responses (bias). This indicates that Item No. 10 in the Indonesian version of the C19P-S does not work well for both groups of respondents.

After going through the initial screening, reliabilities item and person, unidimensionality and rating scale analysis, items and persons difficulties, & Differential Items Functioning (DIF), the COVID-19 Phobia Scale (C19P-S) can be used among the general public. Further researcher's suggestion is to be able to use this COVID-19 Phobia Scale (C19P-S) for applied research.

Conclusions

The COVID-19 Phobia Scale (C19P-S) has been successfully adapted and validated into the Indonesian version. The main findings in this study indicate that C19P-S has sufficient psychometric properties to measure the level of Covid-19 phobia. Practically, some important notes in this study that need to be considered by users are the C19P-S which can be used as many as 18 items, from 20 items of C19P-S. Furthermore, this study has quite high respondent outliers, for that reason, a re-validation process for a larger scale may be required as a comparative study of the findings of this study.

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Competing interests:

The authors declare that they have no significant competing financial, professional or personal interests that might have influenced the performance or presentation of the work described in this manuscript.

Appendix I : Rating Scale Analysis

SUMMARY OF CATEGORY STRUCTURE. Model="R"

CATEGORY LABEL	OBSERVED SCORE	OBSERVED COUNT	OBSERVED %	OBSVD AVRGE	SAMPLE EXPECT	INFIT MNSQ	OUTFIT MNSQ	ANDRICH THRESHOLD	CATEGORY MEASURE	
1	1	149	7	-1.61	-1.60	.96	.96	NONE	(-3.05)	1
2	2	246	11	-.74	-.74	.99	.97	-1.70	-1.46	2
3	3	503	22	.30	.32	.97	.95	-.92	-.19	3
4	4	830	36	1.33	1.31	1.01	1.01	.32	1.40	4
5	5	552	24	2.59	2.60	1.01	1.00	2.30	(3.49)	5

OBSERVED AVERAGE is mean of measures in category. It is not a parameter estimate.

CATEGORY LABEL	STRUCTURE MEASURE	STRUCTURE S.E.	SCORE-TO-MEASURE AT CAT.	SCORE-TO-MEASURE ----ZONE----	50% CUM. PROBABLTY	COHERENCE M->C	COHERENCE C->M	RMSR	ESTIM DISCR	
1	NONE		(-3.05)	-INF -2.31		67%	19%	1.0923		1
2	-1.70	.10	-1.46	-2.31 -.82	-2.01	40%	46%	.9167	1.03	2
3	-.92	.08	-.19	-.82 .52	-.85	43%	42%	.7240	1.01	3
4	.32	.06	1.40	.52 2.58	.43	51%	69%	.5376	1.04	4
5	2.30	.06	(3.49)	2.58 +INF	2.42	72%	43%	.7474	.97	5

M->C = Does Measure imply Category?
C->M = Does Category imply Measure?

Appendix II : Person Measure Order

TABLE 17.1 Olah Data Fiks.xlsx ZOU656WS.TXT Feb 19 2021 15:37
INPUT: 220 PERSON 20 ITEM REPORTED: 120 PERSON 19 ITEM 5 CATS WINSTEPS 4.8.0.0

PERSON: REAL SEP.: 3.07 REL.: .90 ... ITEM: REAL SEP.: 8.82 REL.: .99

PERSON STATISTICS: MEASURE ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	PERSON
100	94	19	5.88	1.05	1.14	.45	1.06	.52	.12	.27	94.7	94.8	100 M B PB UM B Never
78	92	19	4.58	.66	.81	-.19	.59	-.22	.51	.43	84.2	84.4	78 F A J UM A Never
180	91	19	4.19	.59	1.59	1.16	1.10	.38	.36	.48	68.4	81.6	180 F A P UM A Never
192	90	19	3.88	.54	.99	.14	.91	.07	.43	.51	73.7	80.2	192 M B PB M C Yes RT Antigen
147	89	19	3.61	.50	1.09	.34	.89	-.02	.65	.54	78.9	78.2	147 M A PB UM B Never
186	89	19	3.61	.50	1.12	.41	.89	-.01	.64	.54	78.9	78.2	186 F A J UM B Yes RT Antibody
3	86	19	2.97	.43	.79	-.43	1.04	.24	.54	.59	68.4	69.6	3 F A J UM C Never
26	84	19	2.63	.40	1.58	1.44	1.11	.39	.75	.61	63.2	62.6	26 M A Jb UM B Yes RT Antibody
46	84	19	2.63	.40	.94	-.03	1.10	.38	.54	.61	52.6	62.6	46 F A Ntt UM A Never
83	84	19	2.63	.40	.79	-.48	.87	-.22	.68	.61	52.6	62.6	83 M A SS UM C Never
188	84	19	2.63	.40	.57	-1.23	.64	-.97	.81	.61	73.7	62.6	188 F A Jb UM B Never
54	83	19	2.48	.38	1.09	.36	1.07	.31	.77	.62	68.4	60.4	54 F A Ntt UM B Never
88	83	19	2.48	.38	1.49	1.28	1.35	.98	.28	.62	57.9	60.4	88 M A Ntt UM C Never
209	82	19	2.33	.37	.77	-.57	.94	-.06	.55	.63	47.4	56.7	209 M A P UM C Never
50	81	19	2.20	.36	1.15	.53	1.03	.19	.83	.63	42.1	55.3	50 F A Ntt UM B Never
82	81	19	2.20	.36	.62	-1.14	.63	-1.13	.75	.63	63.2	55.3	82 F A SS UM B Yes RT Antibody
101	81	19	2.20	.36	1.31	.92	1.13	.47	.63	.63	47.4	55.3	101 F A PB UM C Never
126	81	19	2.20	.36	.90	-.17	.92	-.13	.67	.63	52.6	55.3	126 F A PB UM A Never
23	80	19	2.07	.35	1.37	1.08	1.03	.21	.71	.64	47.4	54.5	23 F A J UM C Yes RT Antigen
55	80	19	2.07	.35	.86	-.30	.85	-.35	.74	.64	52.6	54.5	55 F A Ntt UM E Never
111	79	19	1.95	.35	1.06	.29	1.37	1.12	.35	.65	42.1	53.5	111 M A J UM B Never
45	78	19	1.83	.34	.96	.00	.94	-.08	.32	.65	57.9	53.7	45 M A J UM B Never
103	78	19	1.83	.34	.82	-.45	.88	-.28	.19	.65	52.6	53.7	103 F A PB UM C Yes RT Antibody
63	77	19	1.72	.33	1.13	.49	1.11	.44	.55	.66	57.9	53.2	63 F A J UM A Never
79	77	19	1.72	.33	.55	-1.53	.70	-.95	.72	.66	63.2	53.2	79 F A Jb UM E Yes PCR
136	77	19	1.72	.33	.44	-2.04	.64	-1.21	.71	.66	63.2	53.2	136 F A PB UM B Never
138	77	19	1.72	.33	.79	-.58	.66	-1.10	.54	.66	63.2	53.2	138 F A Ntt UM E Never
215	77	19	1.72	.33	1.13	.49	1.11	.44	.55	.66	57.9	53.2	215 F A J UM A Never
36	76	19	1.60	.33	1.21	.72	1.27	.89	.63	.67	63.2	53.2	36 F A J UM B Never
44	76	19	1.60	.33	1.03	.20	.89	-.26	.88	.67	52.6	53.2	44 F A Ntt UM A Never
86	76	19	1.60	.33	.88	-.28	.79	-.60	.25	.67	57.9	53.2	86 F A J UM A Yes RT Antibody
159	76	19	1.60	.33	.88	-.27	1.07	.33	.36	.67	63.2	53.2	159 M A P UM B Yes RT Antibody
15	75	19	1.50	.33	.86	-.35	.97	.02	.63	.67	52.6	53.0	15 F A Jb UM B Never
171	75	19	1.50	.33	1.19	.65	1.11	.43	.45	.67	36.8	53.0	171 F A P UM A Never
10	74	19	1.39	.32	.75	-.73	.87	-.34	.66	.68	52.6	51.9	10 F A Bt UM A Yes PCR
90	74	19	1.39	.32	.56	-1.53	.59	-1.43	.86	.68	52.6	51.9	90 F A SS UM C Never

141	74	19	1.39	.32	1.36	1.11	1.40	1.23	.60	.68	52.6	51.9	141	F	A	J	UM	B	Never
69	73	19	1.29	.32	1.00	.10	.87	-.33	.81	.68	63.2	50.9	69	M	A	SS	UM	B	Yes RT Antibody
144	73	19	1.29	.32	.71	-.91	.71	-.91	.54	.68	57.9	50.9	144	F	A	Jb	UM	A	Yes RT Antibody
182	73	19	1.29	.32	.88	-.27	.95	-.07	.61	.68	68.4	50.9	182	F	A	P	UM	C	Yes RT Antibody
191	73	19	1.29	.32	1.15	.54	1.25	.83	.55	.68	47.4	50.9	191	F	A	P	UM	A	Never
47	72	19	1.19	.31	.99	.08	.92	-.15	.88	.69	47.4	50.6	47	F	A	Ntt	UM	B	Never
52	72	19	1.19	.31	1.48	1.41	1.26	.86	.93	.69	36.8	50.6	52	F	A	J	UM	C	Never
193	72	19	1.19	.31	1.47	1.39	1.49	1.45	.56	.69	57.9	50.6	193	F	A	PB	UM	A	Yes RT Antibody
2	71	19	1.09	.31	.96	-.01	.95	-.04	.55	.69	42.1	49.3	2	F	A	J	UM	C	Never
64	71	19	1.09	.31	1.47	1.39	1.53	1.55	.78	.69	36.8	49.3	64	F	A	Ntt	UM	A	Never
77	71	19	1.09	.31	.90	-.23	.92	-.17	.76	.69	42.1	49.3	77	F	A	Jb	UM	B	Yes RT Antibody
80	71	19	1.09	.31	1.51	1.49	1.41	1.25	.88	.69	31.6	49.3	80	F	A	Jb	UM	C	Never
119	71	19	1.09	.31	.76	-.72	.79	-.62	.87	.69	57.9	49.3	119	F	A	Ntt	UM	A	Never
96	70	19	1.00	.31	1.03	.20	1.10	.41	.68	.70	57.9	49.5	96	F	A	PB	UM	E	Never
120	70	19	1.00	.31	1.06	.29	1.00	.12	.71	.70	36.8	49.5	120	F	A	Jb	UM	D	Never
165	70	19	1.00	.31	1.19	.68	1.14	.51	.87	.70	31.6	49.5	165	M	A	P	UM	B	Yes RT Antigen
61	69	19	.90	.31	.90	-.22	.90	-.22	.58	.70	57.9	49.5	61	F	A	Jb	UM	E	Never
105	69	19	.90	.31	1.15	.55	1.05	.26	.80	.70	42.1	49.5	105	F	A	J	UM	B	Yes RT Antibody
14	68	19	.81	.30	.82	-.48	.78	-.64	.63	.70	52.6	49.5	14	F	A	Jb	UM	B	Never
71	68	19	.81	.30	.79	-.61	.79	-.63	.68	.70	36.8	49.5	71	M	B	Jb	M	E	Never
135	68	19	.81	.30	.80	-.56	.78	-.63	.80	.70	52.6	49.5	135	F	B	PB	M	B	Yes PCR
161	68	19	.81	.30	1.34	1.08	1.28	.91	.92	.70	26.3	49.5	161	F	A	Jb	UM	B	Never
202	68	19	.81	.30	1.11	.43	1.25	.83	.76	.70	57.9	49.5	202	F	A	J	UM	B	Never
18	67	19	.72	.30	.61	-1.31	.63	-1.23	.81	.71	63.2	48.4	18	F	A	J	UM	A	Yes RT Antibody
37	67	19	.72	.30	.53	-1.71	.58	-1.48	.86	.71	78.9	48.4	37	F	A	Jb	UM	B	Never
125	67	19	.72	.30	1.24	.79	1.20	.70	.43	.71	42.1	48.4	125	M	B	PB	M	B	Yes RT Antibody
218	67	19	.72	.30	.70	-.95	.82	-.50	.60	.71	52.6	48.4	218	F	A	Jb	UM	B	Never
7	66	19	.63	.30	.89	-.24	.84	-.42	.67	.71	52.6	48.4	7	F	A	Jb	UM	A	Yes PCR
32	66	19	.63	.30	.53	-1.69	.60	-1.37	.79	.71	68.4	48.4	32	F	A	Jb	UM	B	Never
72	66	19	.63	.30	.77	-.69	.76	-.72	.65	.71	36.8	48.4	72	F	A	SS	UM	D	Never
75	66	19	.63	.30	1.03	.20	.93	-.13	.82	.71	63.2	48.4	75	F	A	Jb	UM	C	Yes RT Antibody
148	66	19	.63	.30	.89	-.24	.84	-.42	.67	.71	52.6	48.4	148	F	A	Jb	UM	A	Yes PCR
172	66	19	.63	.30	1.32	1.03	1.34	1.07	.74	.71	47.4	48.4	172	M	A	P	UM	B	Never
11	65	19	.54	.30	.56	-1.53	.59	-1.41	.90	.71	47.4	48.0	11	F	A	Jb	UM	B	Never
34	65	19	.54	.30	1.39	1.19	1.24	.81	.43	.71	63.2	48.0	34	M	A	J	UM	A	Never
38	65	19	.54	.30	1.09	.37	1.07	.33	.88	.71	26.3	48.0	38	F	A	J	UM	A	Never
41	65	19	.54	.30	.80	-.57	.81	-.55	.90	.71	36.8	48.0	41	F	A	Jt	UM	B	Never
70	65	19	.54	.30	.75	-.74	.70	-.95	.60	.71	63.2	48.0	70	F	A	J	UM	C	Never
164	65	19	.54	.30	1.17	.60	1.13	.50	.83	.71	31.6	48.0	164	M	A	P	UM	A	Never
178	64	19	.45	.30	.88	-.29	.85	-.39	.68	.71	47.4	47.8	178	F	A	P	UM	A	Yes PCR
210	64	19	.45	.30	1.03	.20	.95	-.05	.47	.71	52.6	47.8	210	M	B	P	M	B	Yes PCR
217	64	19	.45	.30	.98	.05	1.03	.20	.73	.71	42.1	47.8	217	M	A	P	UM	B	Never
49	63	19	.36	.30	.64	-1.19	.60	-1.38	.76	.72	57.9	47.4	49	F	A	Jb	UM	B	Never
66	63	19	.36	.30	.74	-.79	.75	-.75	.66	.72	68.4	47.4	66	M	A	J	UM	B	Never
123	63	19	.36	.30	1.19	.65	1.17	.61	.85	.72	36.8	47.4	123	M	A	PB	UM	B	Never
130	63	19	.36	.30	.79	-.59	.88	-.28	.78	.72	47.4	47.4	130	F	A	PB	M	B	Never
170	63	19	.36	.30	.84	-.42	.88	-.29	.85	.72	36.8	47.4	170	F	B	PB	M	E	Yes RT Antibody
184	63	19	.36	.30	.67	-1.07	.73	-.82	.66	.72	73.7	47.4	184	F	A	Ntt	UM	D	Never
213	63	19	.36	.30	1.19	.65	1.17	.61	.85	.72	36.8	47.4	213	M	A	P	UM	B	Never
33	62	19	.28	.29	.83	-.46	.83	-.46	.91	.72	26.3	45.9	33	M	A	Jb	UM	B	Never
106	62	19	.28	.29	.87	-.30	.86	-.36	.88	.72	42.1	45.9	106	M	A	Jb	UM	C	Never
112	62	19	.28	.29	1.10	.41	1.11	.43	.54	.72	57.9	45.9	112	F	A	Jb	UM	C	Never
116	62	19	.28	.29	1.25	.83	1.29	.93	.72	.72	52.6	45.9	116	F	A	PB	UM	B	Never
137	62	19	.28	.29	1.18	.65	1.34	1.06	.75	.72	31.6	45.9	137	F	A	Jb	UM	A	Yes RT Antibody
212	62	19	.28	.29	.87	-.30	.86	-.36	.88	.72	42.1	45.9	212	M	A	Jb	UM	C	Never
22	61	19	.19	.29	1.37	1.12	1.36	1.11	.49	.72	31.6	45.8	22	M	A	Jb	UM	E	Never
24	61	19	.19	.29	1.43	1.28	1.37	1.14	.73	.72	42.1	45.8	24	F	A	Jb	UM	B	Yes RT Antibody
104	61	19	.19	.29	1.27	.88	1.26	.85	.58	.72	63.2	45.8	104	F	A	PB	UM	B	Never
133	61	19	.19	.29	.90	-.20	.87	-.33	.73	.72	47.4	45.8	133	F	A	Jb	UM	E	Never
204	61	19	.19	.29	.80	-.54	.72	-.84	.70	.72	63.2	45.8	204	M	A	P	UM	A	Yes RT Antibody
85	60	19	.11	.29	.63	-1.21	.66	-1.08	.91	.72	42.1	45.2	85	M	A	Jb	UM	E	Yes RT Antigen
117	60	19	.11	.29	1.29	.93	1.25	.83	.59	.72	42.1	45.2	117	F	A	J	UM	B	Never
175	60	19	.11	.29	.74	-.76	.74	-.77	.64	.72	57.9	45.2	175	M	A	P	UM	A	Never
187	60	19	.11	.29	.81	-.51	.83	-.45	.76	.72	52.6	45.2	187	M	A	P	UM	B	Yes PCR
25	59	19	.02	.29	.86	-.36	.86	-.34	.84	.72	21.1	44.6	25	F	A	Jb	UM	B	Yes PCR
118	59	19	.02	.29	.96	-.02	.90	-.20	.54	.72	42.1	44.6	118	M	A	PB	UM	B	Never
115	58	19	-.06	.29	1.13	.48	1.05	.25	.75	.72	31.6	43.6	115	F	A	PB	UM	A	Never
57	57	19	-.15	.29	1.06	.29	1.31	.97	.00	.72	52.6	45.0	57	M	A	J	UM	E	Yes RT Antibody
124	57	19	-.15	.29	1.38	1.15	1.26	.84	.76	.72	47.4	45.0	124	F	A	PB	M	B	Never
151	57	19	-.15	.29	1.39	1.19	1.36	1.11	.61	.72	31.6	45.0	151	M	A	Jb	UM	B	Never
185	57	19	-.15	.29	1.06	.29	1.31	.97	.00	.72	52.6	45.0	185	M	A	Ntt	UM	E	Yes PCR
28	56	19	-.23	.29	.70	-.92	.70	-.92	.79	.71	57.9	44.8	28	F	A	Jb	UM	B	Never
95	56	19	-.23	.29	.78	-.63	.77	-.66	.82	.71	42.1	44.8	95	F	A	PB	UM	A	Yes RT Antigen
142	56	19	-.23	.29	.97	.02	1.01	.13	.68	.71	31.6	44.8	142	M	A	PB	UM	B	Never
48	54	19	-.40	.29	.72	-.86	.81	-.53	.59	.71	42.1	47.7	48	F	A	Jb	UM	B	Never
87	54	19	-.40	.29	.73	-.83	.77	-.65	.80	.71	52.6	47.7	87	M	A	SS	UM	E	Yes RT Antibody
189	54	19	-.40	.29	.62	-1.28	.71	-.88	.68	.71	47.4	47.7	189	F	A	P	UM	C	Yes RT Antibody
107	53	19	-.48	.29	1.55	1.57	1.47	1.37	.81	.71	36.8	47.9	107	F	A	Jb	UM	B	Never
58	51	19	-.64	.28	1.06	.28	.96	.00	.74	.70	47.4	48.9	58	F	A	Bt	UM	B	Yes RT Antibody
9	50	19	-.72	.28	.81	-.54	.74	-.73	.78	.69	52.6	48.7	9	M	A	Bt	UM	B	Yes RT Antigen
19	50	19	-.72	.28	1.18	.63	1.05	.27	.74	.69	57.9	48.7	19	F	A	Jb	UM	B	Yes PCR
56	49	19	-.80	.28	1.16	.58	1.06	.27	.78	.69	47.4	48.8	56	F	A	Jb	UM	B	Never
139	47	19	-.96	.28	1.40	1.23	1.49	1.36	.64	.68	42.1	48.7	139	M	A	Jb	UM	C	Never
84	46	19	-1.04	.28	1.24	.81	1.28	.86	.55	.67	21.1	48.4	84	F	A	SS	UM	E	Yes RT Antigen
MEAN	68.6	19.0	.99	.33	.99	.0	.98	.0			51.1	51.5							
P.SD	10.3	.0	1.16	.09	.27	.8	.24	.7			13.5	8.5							