Supplementary materials

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I. The execution time of causal discovery

In this paper, we adopt the PC algorithm [1] and the ANM algorithm [2] for causal discovery as two popular discovery algorithms with broad availability of open source code libraries, facilitating replication of the research. Specifically, in this paper we use the causal-learn Python package [3] which supports both the ANM and the PC algorithms. The PC algorithm is adopted to determine the causal graph of each data set and the ANM algorithm is used to infer causal directions which cannot be determined by the PC algorithm. Table S-1 shows the execution time of causal discovery on each data set [1].

TABLE S-1
The execution time (seconds) of causal discovery on each data set

Data sets	Execution time
Authorship	62.67
Breast	0.38
Dry_bean	25349.87
Ecoli	3.86
Glass	0.41
Haberman	0.31
HTRU2	20745.98
Iris	0.62
mammographic	21.97
Page_blocks	84.85
Penditgits	2150.06
Pima_diabetes	5.63
Sonar	9.77
Vehicle	7.47
Vowel	19.09
Waveform_5000	5122.41
Wine	0.46

II. The procedure of MABLAR and MABLAR-CD

Algorithms 1 and 2 show the procedures of MABLAR and MABLAR-CD, respectively. In both, the meanings of $\boldsymbol{D_{MB}}$ and $\boldsymbol{D_{CD}}$ are consistent with those in the main paper. The step numbers in Algorithms 1 and 2 follow the steps in Fig. 2 of the main paper.

Steps 1a and 1b in Algorithms 1 and 2 are identical, corresponding to the causal graph identification step of both frameworks (i.e., Step 1 in Fig. 2 of the main paper of both frameworks). Although MABLAR is not designed to generate rules focusing on the direction of causal relationships between variables, as explained in Section II.C of the main paper, the causal direction between variables can help to identify the MB of the target variable. Thus, Algorithm 1 also includes a step for identifying the direction of each edge (i.e., Step 1b in Algorithm 1).

Step 2 in Algorithms 1 and 2 is also identical, corresponding to the MB identification step of both frameworks (i.e., Step 2 in Fig. 2 of the main paper of both frameworks). Step 3 of Algorithm 1 is to generate D_{MB} by removing non-MB variables from D, which corresponds to Step 3 in Fig. 2(a) of the main paper. However, as shown in Fig. 2(b) of the main paper, Step 3 of MABLAR-CD first requires identifying the direct causal variables within the MB of the target variable, then generating the subset D_{CD} for rule

Algorithm 1 The procedures of MABLAR

Input: The original data set $\boldsymbol{D}$
Output: The rule base R
Step 1a: Identify the skeleton of the causal graph $\boldsymbol{G}$ of $\boldsymbol{D}$ using a causal structure learning algorithm, such as the PC algorithm.
Step 1b: Determine the direction of the edges in $\boldsymbol{G}$ using a causal direction inference algorithm, such as the ANM algorithm.
Step 2: Identify the MB of the target variable from $\boldsymbol{G}$.
Step 3: Generate the subset of variables $\boldsymbol{D_{MB}}$ from $\boldsymbol{D}$ by removing variables which are not within the MB of the target variable.
Step 4: Generate R from $\boldsymbol{D_{MB}}$ using a rule generation algorithm, such as the WM algorithm.

Algorithm 2 The procedures of MABLAR-CD

Input: The original data set $\boldsymbol{D}$
Output: The rule base R
Step 1a: Identify the skeleton of the causal graph $\boldsymbol{G}$ of $\boldsymbol{D}$ using a causal structure learning algorithm, such as the PC algorithm.
Step 1b: Determine the direction of the edges in $\boldsymbol{G}$ using a causal direction inference algorithm, such as the ANM algorithm.
Step 2: Identify the MB of the target variable from $\boldsymbol{G}$.
Step 3a: Identify the direct cause variables of the target variable within its MB.
Step 3b: Generate the subset of variables $\boldsymbol{D_{CD}}$ from $\boldsymbol{D}$ by removing variables which are not the direct causes of the target variable.
Step 4: Generate R from $\boldsymbol{D_{CD}}$ using a rule generation algorithm, such as the WM algorithm.

[1]The execution time of each data set reported in Table S-1 is the sum of the execution times of the PC algorithm and the ANM algorithm.

generation. Thus, Step 3(a) in Algorithm 2 is to identify the direct cause variables of the target variable and Step 3(b) in Algorithm 2 is to generate D_{CD}.

Finally, the last step in Algorithm 1 and Algorithm 2 is to generate rules using the corresponding subset, which corresponds to Step 4 of both frameworks shown in Fig. 2 of the main paper.

The source code for the MABLAR frameworks and the data sets of this paper are available at https://www.lucidresearch.org/software.

III. Experiment settings

For the causal discovery, the PC algorithm is implemented using the *causallearn.search.ConstraintBased.PC.pc* function from the causal-learn Python package [3]. All parameters except the *uc_rule* parameter are set to their default values. The default *uc_rule* parameter is 0, however, we set the value of the *uc_rule* parameter to 1 so that the PC algorithm can orient as many edges as possible. For the illustrative example, i.e., the Pima Indian Diabetes (PID) data set, we further adjust the *background_knowledge* parameter of the *causallearn.search.ConstraintBased.PC* function using the information provided in [4] and [5] to assist the PC algorithm in discovering causal relationships between variables. The ANM algorithm is implemented using *causal-learn.search.FCMBased.ANM.ANM* in the the causal-learn Python package. All parameters are set as default.

For rule generation, we adopt the *weka.classifiers.Classifier(classname=weka.classifiers.rules.FURIA)* from the python-weka-wrapper3 Python package to implement the FURIA algorithm. All parameters of FURIA are set to their default values.

The WM algorithm is implemented on the Matlab 2020b platform. The linguistic terms of the fuzzy partitions of variables are 'Low', 'Medium' and 'High', unless stated otherwise in the main paper. Trapezoidal and triangle membership functions are adopted for the WM algorithm as they facilitate explainability [6]. The parameters of fuzzy sets of each variable are estimated by the fuzzy C-means (FCM) algorithm which is implemented using the *fcm* function from the *Fuzzy Logic Toolbox* in Matlab 2020b. The iterations of the *fcm* function is set to 3000. All the remaining parameters are set to their default.

For each data set, we first use the FCM algorithm to cluster all data points into clusters on each variable, where the number of clusters is given by the number of partitions as noted above. The value of the corresponding cluster centres ranked from low to high is noted as v_1, v_2 and v_3, respectively. The membership functions of the variables are defined as follows:

$$\mu_{low}(x) = \begin{cases} 1, & x \leq v_1 \\ \frac{x-v_2}{v1-v2}, & v1 < x < v_2 \\ 0, & v_2 < x \end{cases} \tag{1}$$

$$\mu_{medium}(x) = \begin{cases} 0, & x \leq v_1 \\ \frac{x-v_1}{v2-v1}, & v1 < x \leq v_2 \\ \frac{x-v_3}{v2-v3}, & v_2 < x \leq v_3 \\ 1, & v_3 < x \end{cases} \tag{2}$$

$$\mu_{high}(x) = \begin{cases} 0, & x \leq v_2 \\ \frac{x-v_2}{v3-v2}, & v2 < x < v_3 \\ 1, & v_3 < x \end{cases} \tag{3}$$

The random forest model is implemented using the *sklearn.ensemble.RandomForestClassifier* function in the scikit-learn Python package [7]. All parameters are set to their default values.

IV. Illustration of the fuzzy partitions of the simulated data set.

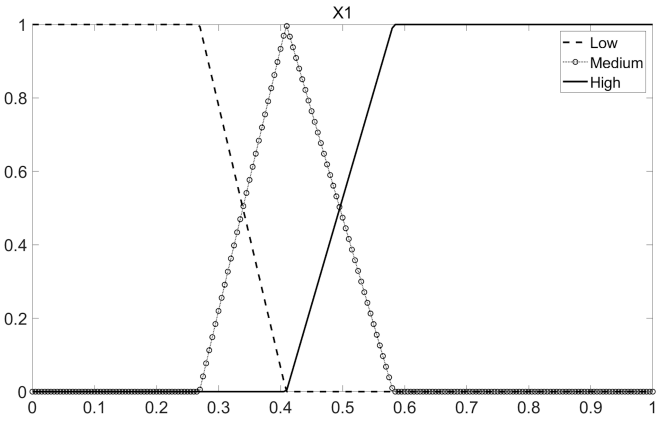

Fig. S-1. The Fuzzy partition of $X1$ of MBCD-WM on the simulated data set

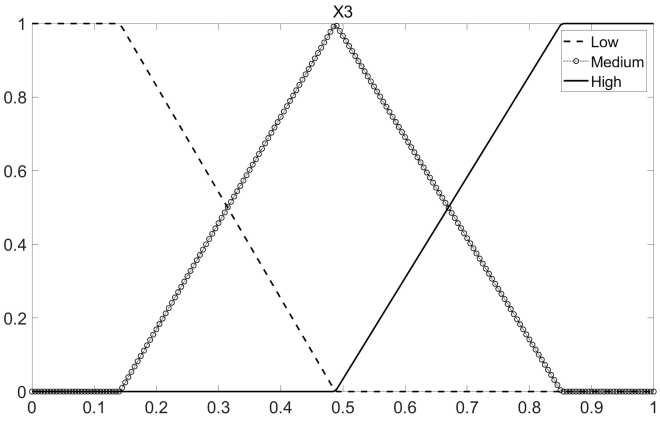

Fig. S-2. The Fuzzy partition of $X3$ of MBCD-WM on the simulated data set

We use the fuzzy partitions of MBCD-WM and MBCD-FURIA obtained from the first fold of the cross-validation as an illustrative example to highlight the difference between

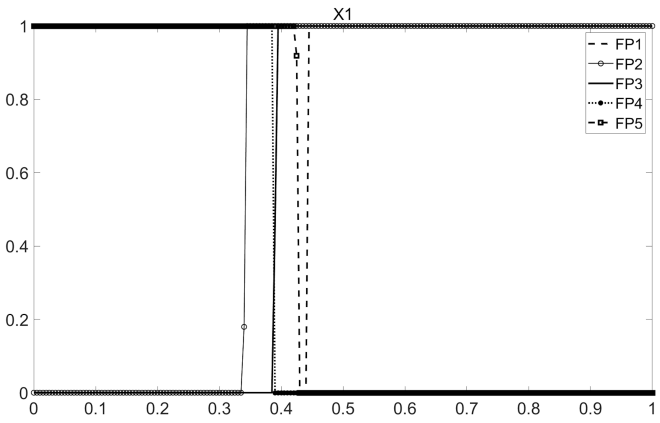

Fig. S-3. The Fuzzy partition of $X1$ of MBCD-FURIA on the simulated data set

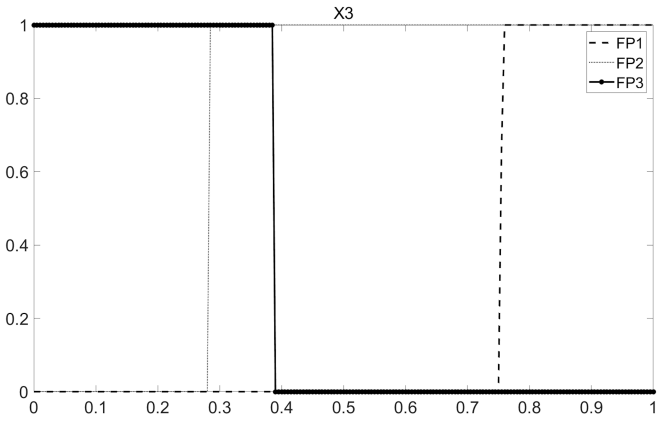

Fig. S-4. The Fuzzy partition of $X3$ of MBCD-FURIA on the simulated data set

partitions as generated by the WM-based and FURIA approaches. Fig. S-1 and Fig. S-2 show the fuzzy partition of $X1$ and $X3$ of MBCD-WM, while Fig. S-3 and Fig. S-4 show the fuzzy partition of $X1$ and $X3$ of MBCD-FURIA.

FURIA determines membership functions at the specific level of each rule, resulting in rules generated by FURIA not offering the same level of semantic explainability as the WM algorithm. In other words, the fuzzy partitions used by individual rules in FURIA are not the same across the rule base. As such, the explainability of the resulting membership functions and rules not as intuitive as it is for the WM algorithm where the partitions are constant, which negatively impacts its explainability.

V. The causal graphs of the simulated data set

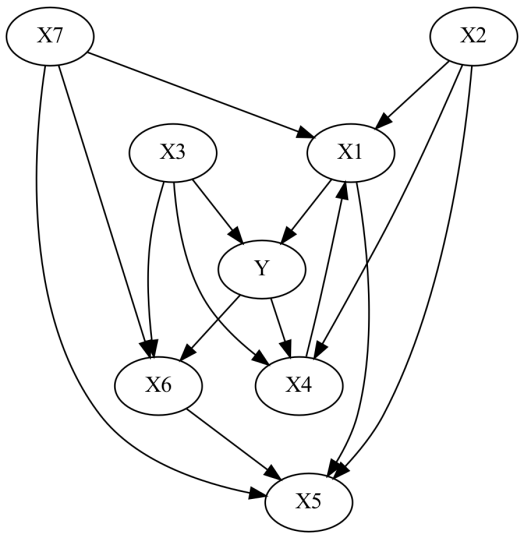

Fig. S-5. The causal graph of the simulated data set obtained by adopted causal discovery algorithms

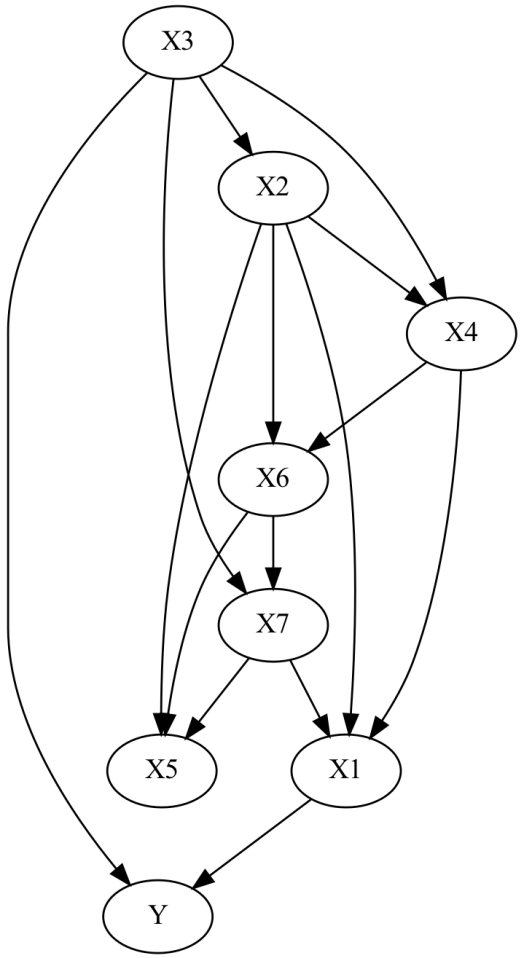

Fig. S-6. The ground truth causal graph of the simulated data set

VI. The performance of the Random forest model

Tables S-2 and Table S-3 are extensions of Table V and Table VI, including the accuracy and F1 scores of the random forest model.

As shown in Table S-2 and Table S-3, although the random forest model achieves the highest accuracy and F1 scores in most data sets (12 data set of accuracy and 11 data sets of F1 scores), MABLAR-based fuzzy systems achieve comparable performance in most data sets. Indeed, the experiment results in Table S-2, Table S-3 and Table VIII show that leveraging causal relationships among variables has the potential to improve model performance while maintaining (or even enhancing) model interpretability.

TABLE S-2
CLASSIFICATION ACCURACY OF DIFFERENT FUZZY SYSTEMS ON EACH DATA SET

	WM		MB-WM		MBCD-WM		FURIA		MB-FURIA		MBCD-FURIA		Random Forest	
	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std
Authorship	0.2057	0.0031	0.0202	0.0099	0.7907	0.0335	**0.8971**	0.0063	0.8962	0.0139	0.7993	0.0162	0.9869	0.0001
Breast	0.9070	0.0195	0.9542	0.0148	0.9414	0.0233	0.9217	0.0134	**0.9245**	0.0129	0.8991	0.0099	0.9614	0.0006
Dry_bean	**0.9115**	0.0044	0.3812	0.0174			0.9084	0.0008	0.5852	0.0077			0.5859	0.0422
Ecoli	**0.8215**	0.0433	0.5031	0.0266			0.7917	0.0354	0.5654	0.0370			0.8601	0.0018
Glass	**0.6536**	0.1040	0.5560	0.0496	0.3643	0.0407	0.4230	0.0515	0.4299	0.0318	0.3878	0.0102	0.7013	0.0026
Haberman	0.6764	0.0321	0.7354	0.0756			0.7353	0.0018	**0.7377**	0.0038			0.7124	0.0029
HTRU2	**0.9754**	0.0040	0.9744	0.0034			0.9741	0.0037	0.9743	0.0034			0.9784	0.0000
Iris	0.9267	0.0365	0.9267	0.0435			0.9283	0.0256	**0.9417**	0.0129			0.9533	0.0014
Mammographic	0.7518	0.0571	**0.8157**	0.0421	0.8000	0.0116	0.7813	0.0062	0.7822	0.0050	0.7861	0.0045	0.7880	0.0016
Page_blocks	**0.9379**	0.0034	0.9165	0.0133			0.9139	0.0032	0.9085	0.0040			0.9625	0.0002
Penditgits	**0.9852**	0.0027	0.9597	0.0069			0.8995	0.0052	0.8192	0.0063			0.9905	0.0000
Pima_diabetes	0.7135	0.0249	0.7122	0.0319	0.6887	0.0481	0.6976	0.0135	0.7103	0.0178	**0.7249**	0.0182	0.7592	0.0024
Sonar	0.1345	0.0495	0.4663	0.0101			**0.7151**	0.0156	0.6141	0.0300			0.7120	0.0150
Vehicle	**0.6666**	0.0534	0.6524	0.0395			0.6356	0.0299	0.6235	0.0503			0.7530	0.0002
Vowel	**0.7343**	0.3293	0.6354	0.1971			0.5212	0.0096	0.5220	0.0141			0.6242	0.0072
Waveform_5000	0.3316	0.0146	**0.7570**	0.0208			0.7271	0.0055	0.7157	0.0046			0.8478	0.0002
Wine	0.6962	0.0407	**0.8987**	0.0256	0.8365	0.0561	0.7374	0.0323	0.7879	0.0341	0.6291	0.0717	0.9667	0.0009

TABLE S-3
THE F1 SCORES OF DIFFERENT FUZZY SYSTEMS ON EACH DATA SET

	WM		MB-WM		MBCD-WM		FURIA		MB-FURIA		MBCD-FURIA		Random Forest	
	F1-mean	Std	F1-mean	Std	F1-mean	Std	F1-mean	Std	F1-mean	Std	F1-mean	Std	F1-mean	Std
Authorship	0.0853	0.0011	0.1022	0.0190	0.7615	0.0297	0.8392	0.0356	**0.8624**	0.0242	0.7401	0.0442	0.9855	0.0001
Breast	0.9545	0.0126	0.9558	0.0205	0.9279	0.0299	**0.9575**	0.0097	0.9518	0.0047	0.9495	0.0098	0.9573	0.0007
Dry-bean	**0.9254**	0.0031	0.2532	0.0258			0.9197	0.0018	0.4940	0.0116			0.6105	0.0497
Ecoli	**0.4841**	0.0392	0.1945	0.0230			0.4521	0.0319	0.2642	0.0182			0.7196	0.0110
Glass	**0.5868**	0.1167	0.5302	0.0830	0.1522	0.0636	0.4395	0.0639	0.4361	0.0609	0.2346	0.0082	0.6665	0.0018
Haberman	0.5527	0.0261	0.4552	0.0565			0.8215	0.0295	**0.8230**	0.0298			0.5626	0.0065
HTRU2	0.9221	0.0087	0.9110	0.0172			0.9874	0.0008	**0.9879**	0.0003			0.9322	0.0001
Iris	0.9254	0.0388	0.9389	0.0445			0.9257	0.0274	**0.9415**	0.0132			0.9531	0.0015
mammographic	0.7541	0.0808	0.7907	0.1109	0.7598	0.0864	**0.8439**	0.0145	0.8416	0.0157	0.7779	0.0192	0.7869	0.0016
Page_blocks	**0.6502**	0.0091	0.5276	0.0516			0.1654	0.0208	0.1546	0.0347			0.7728	0.0066
Penditgits	**0.9852**	0.0028	0.9583	0.0074			0.9493	0.0034	0.9169	0.0023			0.9906	0.0000
Pima_diabetes	0.6750	0.0289	0.6610	0.0205	0.6917	0.0442	0.8064	0.0168	0.8057	0.0120	**0.8091**	0.0132	0.7236	0.0027
Sonar	0.4369	0.0280	0.3419	0.0529			**0.6792**	0.0231	0.5269	0.0932			0.7079	0.0154
Vehicle	0.6614	0.0328	**0.6635**	0.0455			0.5908	0.0500	0.5777	0.0571			0.7469	0.0002
Vowel	0.1336	0.0260	0.1233	0.0041			0.5402	0.0387	**0.5410**	0.0278			0.6148	0.0072
Waveform_5000	0.1670	0.0063	0.7533	0.0195			**0.8027**	0.0061	0.7650	0.0046			0.8474	0.0002
Wine	0.7624	0.0608	**0.9008**	0.0243	0.8248	0.0773	0.2168	0.0078	0.2425	0.0118	0.1992	0.0266	0.9673	0.0009

VII. The rules bases of WM, MB-WM and MBCD-WM

A. The rule base of WM for the PID data set

TABLE S-4: The rule base of WM for the PID data set

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI	DPF	Age	Outcome
R1	Medium	Medium	Medium	High	Low	Overweight	Medium	Young old	Yes
R2	Low	Low	Medium	Medium	Low	Healthy	Low	Middle adulthood	No
R3	High	High	Medium	Low	Low	Healthy	Medium	Middle adulthood	Yes
R4	Low	Low	Medium	Medium	Medium	Healthy	Low	Young adulthood	No
R5	Low	Medium	Medium	High	Medium	Obese	High	Middle adulthood	Yes
R6	Medium	Medium	High	Low	Low	Healthy	Low	Middle adulthood	No
R7	Medium	Low	Medium	High	Medium	Overweight	Low	Young adulthood	No
R8	High	Medium	Low	Low	Low	Overweight	Low	Middle adulthood	No
R9	Low	High	Medium	High	High	Overweight	Low	Old old	Yes
R10	High	Medium	High	Low	Low	Under Weight	Low	Old old	Yes

R11	Medium	Medium	High	Low	Low	Overweight	Low	Middle adulthood	No
R12	High	High	High	Low	Low	Overweight	Medium	Middle adulthood	Yes
R13	High	Medium	High	Low	Low	Healthy	High	Old old	No
R14	Low	High	Medium	Medium	High	Overweight	Low	Old old	Yes
R15	Medium	High	Medium	Medium	Medium	Healthy	Medium	Old old	Yes
R16	High	Low	Low	Low	Low	Overweight	Medium	Middle adulthood	Yes
R17	Low	Medium	High	High	Medium	Obese	Medium	Middle adulthood	Yes
R18	High	Low	High	Low	Low	Overweight	Low	Middle adulthood	No
R19	Low	Low	Low	High	Low	Obese	Low	Middle adulthood	No
R20	Low	Medium	Medium	Medium	Medium	Overweight	Medium	Middle adulthood	Yes
R21	Medium	Medium	High	High	Medium	Obese	Medium	Young adulthood	No
R22	High	Low	High	Low	Low	Overweight	Low	Young old	No
R23	High	High	High	Low	Low	Obese	Low	Young old	Yes
R24	High	Medium	High	High	Low	Healthy	Low	Middle adulthood	Yes
R25	High	Medium	High	High	Medium	Overweight	Low	Old old	Yes
R26	High	Medium	Medium	Medium	Medium	Overweight	Low	Young old	Yes
R27	High	Medium	High	Low	Low	Obese	Low	Young old	Yes
R28	Low	Low	Medium	Medium	Medium	Healthy	Medium	Young adulthood	No
R29	High	Medium	High	Medium	Medium	Healthy	Low	Old old	No
R30	Medium	Medium	High	Low	Low	Overweight	Low	Young old	No
R31	Medium	Medium	High	Medium	Low	Overweight	Medium	Old old	No
R32	Medium	High	High	High	Medium	Overweight	Medium	Middle adulthood	Yes
R33	Medium	Low	Medium	Low	Low	Healthy	Low	Young adulthood	No
R34	Medium	Low	High	Low	Low	Healthy	Low	Middle adulthood	No
R35	High	Medium	High	High	Low	Healthy	Medium	Young old	No
R36	Medium	Low	Medium	High	Medium	Healthy	Medium	Middle adulthood	No
R37	High	Medium	High	Low	Low	Overweight	Low	Middle adulthood	No
R38	High	Low	High	High	Low	Overweight	Medium	Young old	Yes
R39	Low	Low	Medium	High	Low	Overweight	Medium	Young adulthood	Yes
R40	Medium	Medium	Medium	High	Medium	Overweight	High	Old old	Yes
R41	Medium	High	Medium	Medium	Low	Overweight	Low	Young adulthood	No
R42	High	Medium	High	Low	Low	Obese	Medium	Middle adulthood	No
R43	High	Low	High	Medium	Low	Healthy	Low	Young old	No
R44	High	High	High	Medium	Medium	Obese	Medium	Old old	Yes
R45	High	High	Medium	Low	Low	Healthy	Low	Young old	No
R46	Low	High	Medium	High	Low	Obese	High	Young adulthood	Yes
R47	Low	Medium	Medium	Low	Low	Overweight	Medium	Middle adulthood	No
R48	Low	Low	Medium	Medium	Low	Healthy	Medium	Young adulthood	No
R49	High	Low	Medium	High	Low	Obese	Low	Middle adulthood	Yes
R50	High	Low	Low	Low	Low	Under Weight	Low	Young adulthood	No
R51	Low	Low	High	Low	Low	Healthy	Medium	Young adulthood	No
R52	Medium	Low	Medium	Medium	Low	Healthy	Low	Middle adulthood	No
R53	High	High	High	High	Medium	Overweight	Low	Old old	Yes
R54	High	High	Medium	High	High	Overweight	Medium	Young old	No
R55	Low	Low	Medium	Low	Low	Healthy	Low	Young adulthood	No
R56	High	High	Medium	High	High	Overweight	Low	Young old	Yes
R57	Low	Low	High	High	Medium	Obese	Medium	Middle adulthood	No
R58	Low	Medium	High	Low	Low	Obese	High	Young old	No
R59	Low	Low	Medium	High	Medium	Obese	Low	Young adulthood	No
R60	Low	Low	Low	Low	Low	Under Weight	Low	Young adulthood	No
R61	High	Medium	Medium	Low	Low	Overweight	Low	Young old	No
R62	Medium	Low	Medium	Low	Low	Healthy	Medium	Middle adulthood	No
R63	Low	Medium	Medium	High	Medium	Healthy	Medium	Young adulthood	No
R64	Medium	Low	High	Medium	Low	Healthy	Low	Middle adulthood	No
R65	Low	Medium	High	Medium	Low	Overweight	Medium	Young old	Yes
R66	Low	Medium	High	Low	Low	Obese	Medium	Old old	No
R67	Low	Low	Medium	Medium	Low	Healthy	Low	Young adulthood	No
R68	Medium	Medium	High	Medium	Medium	Healthy	Low	Young adulthood	No
R69	Low	Low	Medium	Medium	Medium	Overweight	Medium	Middle adulthood	Yes
R70	Medium	Medium	Medium	High	Medium	Healthy	Low	Young adulthood	No
R71	High	Medium	High	Low	Low	Obese	Medium	Young old	Yes
R72	Medium	Medium	High	Medium	Medium	Overweight	Low	Young adulthood	No
R73	Low	Low	High	Medium	Low	Overweight	Low	Young adulthood	No
R74	Medium	Low	Medium	High	Low	Overweight	Low	Young adulthood	No
R75	Low	Medium	Low	Low	Low	Obese	Low	Young adulthood	Yes
R76	Low	Medium	Medium	Medium	Low	Healthy	Low	Young adulthood	No

R77	Medium	Medium	Medium	Medium	Low	Healthy	Low	Young adulthood	No
R78	High	Low	High	Medium	Low	Healthy	Medium	Middle adulthood	No
R79	Medium	Medium	High	Low	Low	Obese	Low	Middle adulthood	Yes
R80	Low	Medium	High	Medium	Medium	Overweight	Medium	Young adulthood	No
R81	High	Low	Medium	High	Low	Overweight	Low	Young old	No
R82	Low	Low	Medium	Medium	Low	Obese	Low	Young adulthood	No
R83	High	Medium	Medium	High	Medium	Overweight	Low	Young old	No
R84	Medium	Medium	High	Medium	Medium	Overweight	Low	Middle adulthood	No
R85	High	Low	High	High	Low	Obese	Low	Young old	Yes
R86	Medium	Medium	Medium	Low	Low	Healthy	Low	Old old	Yes
R87	Low	Medium	High	Medium	Low	Healthy	Medium	Young adulthood	No
R88	Medium	Medium	Medium	Medium	Medium	Overweight	Low	Young old	No
R89	Low	Low	Medium	Medium	Low	Overweight	Low	Young adulthood	No
R90	Medium	Low	Medium	Medium	Low	Healthy	Low	Young adulthood	No
R91	Low	Medium	High	High	Medium	Obese	Low	Middle adulthood	Yes
R92	Low	High	Medium	Low	Low	Obese	High	Middle adulthood	Yes
R93	Low	High	Medium	Low	Low	Healthy	Low	Young adulthood	No
R94	Low	Medium	High	Low	Low	Healthy	Low	Young adulthood	No
R95	Low	Low	Medium	Low	Low	Obese	Medium	Young adulthood	No
R96	Low	Medium	Medium	Medium	Medium	Healthy	Medium	Young adulthood	No
R97	Low	Low	High	Low	Low	Healthy	Low	Young adulthood	No
R98	Medium	Medium	Medium	Medium	Medium	Overweight	Low	Middle adulthood	No
R99	Medium	High	Medium	High	Medium	Overweight	Low	Young adulthood	Yes
R100	High	High	Medium	Medium	High	Overweight	Medium	Young old	Yes
R101	Low	Low	High	High	Low	Overweight	Low	Young adulthood	No
R102	Medium	Low	Medium	Low	Low	Overweight	Low	Young adulthood	No
R103	High	High	Medium	High	Medium	Overweight	Medium	Young old	Yes
R104	Medium	Medium	High	Low	Low	Overweight	Medium	Old old	Yes
R105	Medium	Low	Medium	Low	Low	Overweight	Medium	Young adulthood	No
R106	Medium	Low	High	Medium	Low	Healthy	Low	Young adulthood	No
R107	Low	High	High	High	Medium	Obese	Medium	Young adulthood	Yes
R108	Medium	Medium	Medium	High	Low	Overweight	Low	Young adulthood	No
R109	Low	Low	High	Medium	Medium	Overweight	Low	Young adulthood	No
R110	Medium	Medium	High	Low	Low	Healthy	Low	Old old	No
R111	Low	Medium	High	Low	Low	Overweight	Low	Young adulthood	No
R112	Low	Low	Low	High	Medium	Obese	Medium	Young adulthood	Yes
R113	Medium	Medium	Medium	Medium	Medium	Obese	Low	Middle adulthood	No
R114	Low	Medium	Medium	High	Medium	Overweight	Low	Young adulthood	No
R115	Low	Medium	High	Medium	Medium	Overweight	Low	Young old	Yes
R116	Low	Low	High	Low	Low	Healthy	Medium	Old old	Yes
R117	Medium	High	Medium	Medium	Medium	Overweight	Low	Middle adulthood	Yes
R118	High	Medium	Medium	Low	Low	Overweight	High	Middle adulthood	Yes
R119	Medium	High	Medium	High	Medium	Overweight	Low	Middle adulthood	Yes
R120	High	Low	High	High	Low	Overweight	Low	Young old	No
R121	Low	Medium	Medium	Medium	Medium	Overweight	Low	Middle adulthood	No
R122	Low	Low	Medium	Medium	Low	Overweight	Medium	Young adulthood	No
R123	Low	Medium	High	Low	Low	Overweight	Medium	Middle adulthood	Yes
R124	Medium	Low	Medium	Medium	High	Overweight	Low	Middle adulthood	No
R125	Medium	Low	High	Medium	Low	Obese	Low	Young old	No
R126	High	Low	Medium	Low	Low	Overweight	Low	Young old	No
R127	Low	Low	High	Medium	Low	Under Weight	Medium	Young adulthood	No
R128	Low	Low	Medium	High	Medium	Overweight	High	Middle adulthood	No
R129	Medium	Medium	High	Low	Low	Overweight	Low	Old old	No
R130	Low	Medium	High	High	Medium	Overweight	Low	Young adulthood	No
R131	Medium	Medium	Medium	Low	Low	Healthy	Low	Middle adulthood	No
R132	High	High	High	Medium	Medium	Overweight	High	Young old	Yes
R133	Low	High	High	High	High	Obese	Medium	Young adulthood	No
R134	High	High	High	High	Low	Obese	Low	Middle adulthood	Yes
R135	Low	Low	High	Medium	Low	Healthy	Low	Young adulthood	No
R136	High	High	Medium	High	Medium	Obese	Medium	Young old	Yes
R137	Medium	High	High	High	Low	Overweight	Low	Middle adulthood	No
R138	High	Low	High	High	Medium	Overweight	Low	Young old	No
R139	Low	Medium	High	High	Medium	Obese	Low	Young adulthood	Yes
R140	Medium	Low	High	Medium	Medium	Overweight	Medium	Young old	Yes
R141	Medium	Medium	Medium	Medium	Low	Overweight	Low	Young adulthood	No
R142	Medium	Medium	Medium	Low	Low	Overweight	Medium	Middle adulthood	No

R143	Medium	Medium	Medium	Low	Low	Overweight	Low	Middle adulthood	Yes
R144	Medium	Medium	High	Medium	Low	Healthy	Medium	Middle adulthood	No
R145	Medium	Low	High	Low	Low	Overweight	Low	Middle adulthood	Yes
R146	Medium	Medium	Medium	Medium	Medium	Overweight	Medium	Middle adulthood	Yes
R147	Low	Low	Low	Medium	Low	Healthy	Medium	Young adulthood	No
R148	Low	Low	Medium	High	Low	Obese	Medium	Young adulthood	No
R149	Low	Low	Medium	Medium	Low	Overweight	Low	Middle adulthood	No
R150	High	High	Medium	High	Medium	Overweight	Medium	Middle adulthood	Yes
R151	Medium	Low	High	Low	Low	Overweight	Low	Young old	No
R152	Medium	Medium	High	Low	Low	Obese	Low	Young old	No
R153	Medium	Medium	High	Low	Low	Obese	Medium	Middle adulthood	Yes
R154	Low	Medium	Medium	Medium	Medium	Overweight	Medium	Young adulthood	No
R155	Medium	Medium	High	Low	Low	Healthy	Low	Young old	No
R156	High	High	Medium	Medium	Low	Overweight	Medium	Young old	Yes
R157	High	High	Medium	High	High	Overweight	Medium	Old old	Yes
R158	Low	Medium	High	High	Low	Overweight	High	Middle adulthood	Yes
R159	High	Medium	High	High	Medium	Healthy	Medium	Middle adulthood	Yes
R160	Medium	Medium	High	High	Medium	Overweight	Low	Young adulthood	Yes
R161	Medium	Medium	Medium	Low	Low	Healthy	Low	Young adulthood	No
R162	High	High	Medium	Low	Low	Overweight	Low	Middle adulthood	No
R163	High	Medium	Low	Low	Low	Obese	Medium	Young old	Yes
R164	High	Low	Medium	Medium	Low	Healthy	Low	Young old	No
R165	Medium	High	High	High	Medium	Obese	Low	Middle adulthood	Yes
R166	Medium	Low	Medium	Medium	Low	Healthy	Medium	Young adulthood	Yes
R167	Medium	Medium	Medium	High	Medium	Overweight	Medium	Young adulthood	Yes
R168	Medium	Medium	Medium	Medium	High	Overweight	Low	Middle adulthood	Yes
R169	Low	Medium	High	Medium	Low	Overweight	Medium	Young adulthood	No
R170	Low	Medium	High	Low	Low	Obese	Low	Middle adulthood	No
R171	Low	Low	Medium	Medium	Low	Healthy	Medium	Middle adulthood	No
R172	Medium	Low	Medium	High	Medium	Overweight	Low	Old old	No
R173	High	High	High	Medium	Medium	Overweight	Medium	Old old	Yes
R174	Medium	High	High	Low	Low	Overweight	Low	Old old	Yes
R175	Low	Low	Medium	Medium	Medium	Overweight	Low	Young adulthood	No
R176	High	High	High	High	Low	Overweight	Low	Young old	Yes
R177	Low	Medium	High	High	Low	Obese	Low	Young adulthood	No
R178	High	High	High	High	Low	Overweight	Low	Old old	No
R179	Low	Medium	Medium	Medium	Medium	Obese	Low	Young adulthood	Yes
R180	High	Medium	High	High	Medium	Overweight	Low	Middle adulthood	Yes
R181	Medium	Low	High	Medium	Low	Healthy	High	Middle adulthood	Yes
R182	Medium	Medium	Medium	Low	Low	Overweight	Low	Young old	Yes
R183	Low	High	Medium	Medium	High	Overweight	High	Young adulthood	Yes
R184	Low	High	High	Low	Low	Overweight	Medium	Old old	Yes
R185	High	Medium	Low	Low	Low	Healthy	Low	Middle adulthood	No
R186	High	Medium	Medium	High	Medium	Healthy	Medium	Old old	No
R187	Low	Low	High	Low	Low	Overweight	Low	Young adulthood	No
R188	Medium	High	Medium	High	Low	Overweight	Medium	Young adulthood	Yes
R189	Medium	High	Medium	High	High	Overweight	High	Middle adulthood	No
R190	Medium	Medium	High	Low	Low	Obese	Medium	Young adulthood	Yes
R191	Medium	Medium	High	High	High	Obese	Low	Young old	Yes
R192	Low	Low	High	Medium	Low	Healthy	Medium	Young adulthood	No
R193	Medium	Low	Medium	Medium	Low	Overweight	Low	Young adulthood	No
R194	Medium	High	Medium	Low	Low	Obese	Medium	Young adulthood	Yes
R195	Low	High	High	Medium	Low	Obese	Medium	Young adulthood	Yes
R196	High	High	High	Medium	Low	Overweight	Medium	Middle adulthood	Yes
R197	Medium	Medium	Medium	Medium	Medium	Healthy	High	Middle adulthood	Yes
R198	Low	Medium	High	High	Medium	Overweight	Low	Middle adulthood	No
R199	High	High	High	Medium	Low	Overweight	High	Young old	Yes
R200	Low	High	High	High	High	Obese	Low	Young adulthood	Yes
R201	High	Medium	Medium	High	High	Overweight	Low	Middle adulthood	No
R202	Low	Medium	High	Medium	Low	Overweight	Low	Young adulthood	No
R203	Low	Low	Medium	High	Low	Overweight	Low	Young adulthood	No
R204	High	Low	Medium	Low	Medium	Healthy	Medium	Young old	Yes
R205	Low	Medium	Medium	High	Low	Overweight	Medium	Young adulthood	Yes
R206	Medium	Medium	Medium	High	Low	Overweight	Medium	Middle adulthood	No
R207	Low	High	Medium	Medium	High	Healthy	Medium	Young adulthood	No
R208	High	High	High	Medium	Medium	Overweight	High	Old old	Yes

R209	Medium	Medium	Low	Low	Low	Overweight	Medium	Young adulthood	Yes
R210	Medium	Low	Medium	High	Low	Overweight	Medium	Young adulthood	No
R211	Medium	Medium	High	Medium	Low	Overweight	Low	Old old	Yes
R212	Medium	Low	High	Medium	Low	Overweight	Medium	Young old	No
R213	Low	Medium	Low	Low	Low	Overweight	Medium	Young adulthood	Yes
R214	Low	Medium	Medium	High	Low	Obese	High	Young adulthood	No
R215	Low	Medium	Low	Low	Low	Healthy	Low	Middle adulthood	Yes
R216	High	Low	High	High	Low	Obese	High	Young old	Yes
R217	Low	Low	Medium	High	Low	Healthy	Low	Young adulthood	No
R218	High	Low	Medium	Low	Low	Overweight	Low	Old old	No
R219	High	Low	Medium	Medium	Low	Healthy	Low	Middle adulthood	Yes
R220	Medium	Medium	High	Low	Low	Healthy	Medium	Old old	No
R221	Low	Low	Medium	Low	Medium	Healthy	Medium	Young adulthood	No
R222	Low	Medium	Medium	Low	Low	Overweight	Low	Middle adulthood	Yes
R223	High	Medium	High	Medium	Medium	Overweight	Low	Young old	No
R224	High	Medium	High	Medium	Medium	Overweight	Low	Middle adulthood	No
R225	High	High	High	Low	Low	Overweight	Low	Young old	Yes
R226	Low	Low	High	Low	Low	Healthy	Low	Old old	Yes
R227	High	Medium	High	Medium	Medium	Healthy	Medium	Old old	No
R228	Medium	High	High	High	High	Obese	Medium	Middle adulthood	No
R229	Medium	Low	Medium	High	Low	Overweight	Low	Middle adulthood	No
R230	Low	Medium	High	High	Medium	Obese	High	Middle adulthood	Yes
R231	Low	Medium	Medium	High	Medium	Obese	Medium	Young adulthood	Yes
R232	Low	High	Medium	Low	Low	Healthy	Low	Old old	No
R233	Medium	High	Medium	High	Medium	Overweight	Medium	Middle adulthood	No
R234	Low	Medium	Medium	High	High	Healthy	Low	Middle adulthood	Yes
R235	High	Low	High	Medium	Medium	Overweight	Low	Young old	Yes
R236	High	Medium	Medium	Low	Low	Healthy	Medium	Old old	No
R237	Low	High	Low	Low	Low	Overweight	Medium	Middle adulthood	Yes
R238	Medium	Low	High	High	Low	Overweight	Low	Middle adulthood	No
R239	Medium	High	High	Low	Low	Healthy	Low	Middle adulthood	No
R240	High	High	Medium	Medium	Medium	Healthy	Low	Young old	Yes
R241	Low	Medium	Medium	Medium	Medium	Healthy	Low	Young adulthood	No
R242	Low	Medium	Medium	Medium	Medium	Overweight	High	Young adulthood	Yes
R243	Medium	Low	Medium	Medium	Low	Healthy	Low	Young old	No
R244	Low	Low	Medium	High	Medium	Obese	Medium	Young adulthood	No
R245	Low	High	High	Medium	Medium	Healthy	Low	Young adulthood	Yes
R246	Medium	Medium	Medium	Low	Low	Overweight	Medium	Young adulthood	No
R247	High	Medium	High	High	Low	Overweight	High	Young old	Yes
R248	Low	Medium	Medium	Medium	Medium	Overweight	Low	Young adulthood	No
R249	Medium	High	High	Low	Low	Overweight	Low	Middle adulthood	Yes
R250	Medium	Medium	Medium	High	Medium	Overweight	Low	Middle adulthood	No
R251	Medium	High	High	Low	Low	Healthy	Low	Old old	Yes
R252	Medium	Medium	Medium	Medium	Medium	Healthy	Medium	Middle adulthood	No
R253	Medium	Medium	High	Medium	Low	Overweight	Low	Young adulthood	Yes
R254	Low	Medium	Medium	Medium	Low	Healthy	Low	Middle adulthood	Yes
R255	High	High	High	High	Low	Healthy	Medium	Young old	Yes
R256	Low	Medium	High	High	Low	Overweight	Low	Young adulthood	No
R257	Low	High	Medium	Medium	Medium	Healthy	Low	Young adulthood	No
R258	Low	Medium	Medium	High	Medium	Overweight	Medium	Middle adulthood	Yes
R259	Low	Low	High	High	Medium	Obese	Low	Young adulthood	Yes
R260	High	Medium	Medium	Medium	Low	Healthy	High	Young old	No
R261	Low	High	Low	Low	Low	Obese	Low	Young old	Yes
R262	High	Low	High	Low	Low	Healthy	Low	Young old	No
R263	Low	High	High	High	Medium	Obese	Low	Young adulthood	No
R264	Low	Medium	Low	Low	Low	Overweight	Medium	Young old	No
R265	High	High	High	High	Medium	Overweight	Medium	Middle adulthood	Yes
R266	Low	Low	High	Medium	Low	Healthy	Medium	Middle adulthood	No
R267	High	Low	Medium	Low	Low	Overweight	Medium	Old old	No
R268	High	Medium	High	High	Medium	Obese	Low	Young old	No
R269	Low	Medium	Medium	Medium	Low	Healthy	Medium	Young adulthood	No
R270	Medium	Medium	Low	Low	Low	Healthy	Low	Young adulthood	No
R271	Medium	Low	High	High	Low	Obese	Low	Middle adulthood	No
R272	Medium	Low	High	Low	Low	Obese	Low	Middle adulthood	No
R273	Medium	Low	High	Medium	Low	Overweight	Low	Young old	No
R274	Medium	Low	High	Low	Low	Obese	Medium	Young adulthood	No

R275	High	Medium	Low	Medium	Low	Obese	Medium	Young old	Yes
R276	Low	High	High	High	Medium	Overweight	Medium	Middle adulthood	Yes
R277	Medium	High	Medium	High	High	Overweight	Medium	Middle adulthood	Yes
R278	Medium	High	Medium	Low	Low	Overweight	Low	Old old	No
R279	Medium	Low	High	High	Low	Obese	Low	Old old	No
R280	Medium	Medium	High	Low	Low	Obese	Medium	Old old	Yes
R281	Medium	Low	Medium	Medium	Low	Overweight	Medium	Middle adulthood	No
R282	Medium	High	High	High	High	Obese	High	Young adulthood	Yes
R283	Low	Medium	Medium	Medium	Medium	Under Weight	High	Young adulthood	No
R284	Low	Low	Medium	High	Medium	Overweight	Low	Young adulthood	No
R285	High	Medium	High	High	High	Obese	Medium	Old old	Yes
R286	Medium	High	High	Low	Low	Obese	Low	Middle adulthood	Yes
R287	Low	Low	High	High	Low	Obese	Medium	Middle adulthood	No
R288	Low	Medium	Medium	Low	Medium	Healthy	Medium	Young adulthood	No
R289	Low	Low	Medium	Medium	Low	Healthy	High	Young adulthood	No
R290	Medium	Medium	High	Medium	Low	Overweight	Medium	Middle adulthood	Yes
R291	Medium	Medium	High	Medium	Medium	Overweight	Low	Old old	Yes
R292	Low	Low	Medium	Medium	Medium	Overweight	Low	Young old	No
R293	Medium	High	High	Low	Low	Obese	Low	Young adulthood	Yes
R294	Low	Medium	Medium	Medium	High	Healthy	Low	Young adulthood	No
R295	Medium	Medium	Medium	Medium	Medium	Healthy	Low	Middle adulthood	No
R296	Medium	High	High	Low	Low	Overweight	Medium	Middle adulthood	Yes
R297	Low	Medium	Medium	Medium	Medium	Healthy	High	Young adulthood	No
R298	Medium	Low	Medium	High	Medium	Healthy	Medium	Young old	No
R299	Low	Medium	Medium	High	Low	Overweight	Low	Young adulthood	Yes
R300	Medium	High	Medium	High	Low	Overweight	Low	Young adulthood	Yes
R301	Medium	Low	Medium	Low	Low	Overweight	Low	Middle adulthood	Yes
R302	Medium	Medium	High	High	Medium	Overweight	Low	Middle adulthood	Yes
R303	High	Low	High	Medium	Low	Overweight	Low	Young old	No
R304	Medium	High	Medium	Low	Low	Overweight	Low	Young old	Yes
R305	Medium	Medium	Medium	Low	Low	Healthy	Low	Young old	Yes
R306	High	High	High	Low	Low	Healthy	High	Young old	Yes
R307	Low	High	Medium	High	High	Obese	Medium	Middle adulthood	Yes
R308	Medium	Low	High	High	Low	Overweight	Medium	Middle adulthood	No
R309	Low	Medium	High	Medium	High	Obese	High	Young adulthood	No
R310	Low	Medium	High	Medium	Low	Healthy	Low	Young adulthood	No
R311	Low	Medium	Medium	High	Medium	Overweight	Medium	Young adulthood	Yes
R312	Medium	High	High	High	High	Overweight	Low	Young adulthood	Yes
R313	Medium	Medium	High	High	Low	Obese	Medium	Middle adulthood	Yes
R314	Low	Low	Medium	Low	Low	Healthy	Medium	Young adulthood	No
R315	Low	Medium	High	High	Medium	Obese	Medium	Young adulthood	No
R316	Low	Medium	Medium	Medium	Low	Overweight	Low	Young adulthood	No
R317	High	High	High	High	Medium	Obese	Medium	Middle adulthood	Yes
R318	Medium	High	High	High	Medium	Overweight	Low	Middle adulthood	Yes
R319	Low	High	Medium	Medium	Medium	Overweight	Low	Young old	Yes
R320	Low	Low	High	Medium	Medium	Overweight	Low	Young old	Yes
R321	Low	Low	Low	Low	Low	Healthy	Low	Young adulthood	No
R322	Low	Low	High	Low	Low	Overweight	Medium	Young adulthood	No
R323	Low	Medium	High	Low	Low	Healthy	Low	Middle adulthood	No
R324	Low	Low	Medium	Low	Low	Healthy	High	Middle adulthood	No
R325	Low	Medium	Low	Low	Low	Obese	Low	Middle adulthood	Yes
R326	High	Medium	High	High	Low	Overweight	Low	Young old	No
R327	Medium	Low	High	Low	Low	Overweight	Medium	Middle adulthood	No
R328	Low	High	High	Medium	Low	Overweight	Low	Young old	Yes
R329	Medium	Medium	Medium	Medium	Medium	Overweight	Low	Young adulthood	No
R330	High	Low	Medium	Low	Low	Overweight	Medium	Middle adulthood	Yes
R331	Medium	Medium	Medium	Medium	Low	Overweight	Low	Middle adulthood	Yes
R332	Low	High	High	High	Low	Obese	High	Young adulthood	Yes
R333	Low	Low	High	High	Medium	Overweight	Low	Young adulthood	No
R334	Low	Medium	Medium	Low	Low	Healthy	Medium	Young adulthood	Yes
R335	Low	Medium	Low	Low	Low	Healthy	Medium	Old old	No
R336	Low	Low	Medium	Medium	Medium	Overweight	Medium	Young adulthood	No
R337	High	High	Medium	Medium	Low	Overweight	Low	Young old	Yes
R338	Low	Medium	Medium	Low	Low	Healthy	Medium	Old old	No
R339	High	Medium	High	High	Medium	Overweight	Medium	Old old	Yes
R340	High	Medium	High	High	Low	Healthy	Low	Old old	No

R341	High	Medium	Medium	Medium	Low	Healthy	Medium	Young old	No
R342	High	Low	Medium	High	Low	Overweight	Medium	Young old	No
R343	High	Medium	High	Low	Low	Healthy	Medium	Middle adulthood	No
R344	Low	Low	Medium	High	Medium	Overweight	Medium	Young adulthood	Yes
R345	High	Medium	Low	Low	Low	Overweight	Low	Young old	Yes
R346	Medium	High	High	High	Medium	Obese	Medium	Young adulthood	No
R347	Low	Medium	High	High	Low	Obese	Medium	Middle adulthood	No
R348	Low	Medium	Medium	Medium	Low	Obese	Low	Young adulthood	No
R349	High	Medium	High	Low	Low	Overweight	Low	Young old	No
R350	Low	Medium	High	Medium	Low	Healthy	Low	Old old	No
R351	Low	Low	High	High	Medium	Overweight	Medium	Middle adulthood	Yes
R352	High	Medium	High	Medium	Medium	Healthy	Low	Middle adulthood	No
R353	High	Medium	High	High	Low	Healthy	Low	Young old	No
R354	Medium	Medium	High	High	Low	Healthy	Low	Old old	No
R355	Medium	High	Medium	Medium	High	Overweight	Low	Middle adulthood	Yes
R356	Low	Medium	High	High	Low	Overweight	Low	Middle adulthood	No
R357	Low	Medium	Low	Low	Low	Obese	Medium	Middle adulthood	Yes
R358	Low	Medium	Medium	High	Medium	Obese	Low	Young adulthood	Yes
R359	Low	Medium	Medium	High	High	Obese	Medium	Young adulthood	No
R360	Low	High	High	High	Medium	Obese	High	Old old	No
R361	High	High	High	Low	Low	Healthy	Medium	Old old	No
R362	Low	Low	High	Medium	Low	Overweight	Low	Young old	No
R363	Medium	Medium	Medium	Medium	Medium	Healthy	High	Young old	Yes
R364	Medium	Low	Low	Low	Low	Under Weight	Low	Young adulthood	No
R365	High	High	Medium	High	Medium	Healthy	Low	Old old	Yes
R366	Medium	High	High	High	Medium	Healthy	Medium	Young old	No
R367	Medium	Low	Medium	High	Low	Obese	Medium	Young old	Yes
R368	High	Low	Medium	Medium	Low	Overweight	Medium	Young old	No
R369	Medium	Low	High	High	Low	Overweight	Low	Young old	No
R370	Low	High	High	Medium	Medium	Overweight	Low	Middle adulthood	Yes
R371	High	Medium	High	Low	Low	Healthy	Low	Old old	No
R372	High	Low	Medium	Low	Low	Healthy	Low	Old old	No
R373	Medium	Low	Medium	Medium	Medium	Healthy	Low	Young adulthood	No
R374	High	Medium	High	Low	Low	Overweight	Low	Old old	No
R375	Medium	Medium	High	Low	High	Healthy	Medium	Old old	No
R376	Medium	Medium	Low	Low	Low	Under Weight	Low	Young adulthood	No
R377	High	Medium	Medium	Low	Low	Overweight	Medium	Young old	Yes
R378	Medium	Medium	Medium	Low	Low	Overweight	Low	Young adulthood	No
R379	Low	Medium	Medium	Low	Low	Healthy	Medium	Middle adulthood	No
R380	Low	Low	High	Low	Low	Obese	Medium	Young adulthood	No
R381	Low	Low	Medium	High	Low	Obese	Medium	Middle adulthood	No
R382	Medium	Low	Low	Low	Low	Overweight	Medium	Middle adulthood	No
R383	Low	Low	Medium	Medium	Low	Overweight	High	Young adulthood	No
R384	Medium	Medium	Low	Low	Low	Overweight	Low	Young adulthood	Yes
R385	Low	Low	High	Low	Low	Overweight	Low	Young old	No
R386	Low	Low	Medium	Low	Low	Healthy	Medium	Old old	No
R387	Low	Medium	High	High	Medium	Overweight	Medium	Young adulthood	No
R388	Medium	Medium	High	High	Medium	Overweight	Medium	Middle adulthood	Yes
R389	High	Low	High	High	Medium	Obese	Medium	Young old	Yes
R390	Medium	Medium	Medium	Medium	Medium	Overweight	Medium	Young adulthood	Yes
R391	High	Low	High	High	Low	Overweight	Medium	Old old	Yes
R392	Medium	Low	High	Medium	Low	Obese	Low	Young adulthood	No
R393	Low	Low	High	Medium	Low	Overweight	Low	Middle adulthood	No
R394	High	High	High	High	Medium	Overweight	Low	Middle adulthood	Yes
R395	Medium	High	High	Medium	Medium	Obese	High	Old old	Yes
R396	Low	High	High	High	Low	Overweight	Low	Young old	No
R397	Medium	High	High	High	Low	Healthy	Medium	Middle adulthood	No
R398	Medium	Low	Medium	Medium	Medium	Overweight	Medium	Young adulthood	No
R399	Low	Low	Medium	Medium	Medium	Overweight	Low	Middle adulthood	No
R400	High	Medium	Medium	High	Medium	Healthy	Low	Middle adulthood	No
R401	Low	Low	Medium	High	Low	Overweight	Low	Middle adulthood	No
R402	High	Low	Medium	High	Low	Obese	Low	Young old	No
R403	Low	High	Medium	High	Medium	Obese	Medium	Middle adulthood	Yes
R404	Medium	Low	Medium	Medium	Low	Healthy	Medium	Middle adulthood	No
R405	Medium	Low	Medium	High	Medium	Overweight	Low	Young old	No
R406	Medium	Low	Medium	Low	Low	Overweight	Low	Young old	No

R407	Low	Medium	High	Medium	High	Overweight	Medium	Young adulthood	No
R408	Medium	Low	Medium	Medium	Medium	Healthy	Medium	Middle adulthood	No
R409	Low	Medium	High	Low	Low	Obese	Medium	Young adulthood	Yes
R410	High	Medium	Medium	Low	Low	Healthy	Low	Middle adulthood	No
R411	Low	High	Medium	High	Low	Overweight	Medium	Old old	Yes
R412	Low	High	High	High	Low	Obese	Low	Young adulthood	Yes
R413	High	Medium	High	Medium	Low	Healthy	Low	Old old	No
R414	High	Low	High	Low	Low	Obese	Low	Young old	No
R415	High	Medium	High	Medium	High	Healthy	Medium	Old old	Yes
R416	Medium	Low	Medium	Low	Low	Healthy	Low	Middle adulthood	No
R417	Medium	High	High	Medium	Medium	Overweight	High	Old old	Yes
R418	High	Medium	High	High	Low	Obese	Medium	Young old	Yes
R419	Low	Low	Medium	Medium	Medium	Healthy	High	Young adulthood	No
R420	Medium	Medium	Medium	High	Medium	Overweight	Medium	Middle adulthood	No
R421	Low	High	High	Medium	Medium	Overweight	Medium	Young adulthood	Yes
R422	Low	Low	High	Low	Low	Obese	Low	Young old	No
R423	Low	High	High	Low	Low	Overweight	Low	Young old	Yes
R424	Medium	Low	Low	Low	Low	Healthy	Low	Middle adulthood	No
R425	Low	Medium	High	High	Low	Healthy	Low	Middle adulthood	No
R426	Medium	High	Low	Low	Low	Healthy	Low	Middle adulthood	Yes
R427	Low	High	High	High	Medium	Obese	High	Young adulthood	Yes
R428	Medium	Low	Medium	Medium	Medium	Overweight	Low	Young adulthood	No
R429	Medium	High	Medium	Medium	Medium	Overweight	Medium	Middle adulthood	Yes
R430	High	High	High	High	High	Overweight	Medium	Young old	Yes
R431	Medium	Low	High	Medium	Low	Overweight	Medium	Young adulthood	No
R432	High	Medium	High	Medium	Medium	Overweight	Medium	Young old	Yes
R433	High	Medium	High	Medium	Low	Healthy	High	Young old	Yes
R434	Low	Medium	Low	Low	Low	Overweight	Low	Young adulthood	Yes
R435	Low	Low	High	Medium	Low	Healthy	High	Middle adulthood	No
R436	Medium	High	High	Low	Low	Obese	High	Young old	No
R437	Low	Low	Medium	Medium	Medium	Obese	Low	Young adulthood	No
R438	Low	Low	Medium	Low	Low	Overweight	Low	Young adulthood	No
R439	Low	Medium	Medium	Low	Low	Healthy	Low	Young adulthood	No
R440	High	Medium	Medium	Low	Low	Healthy	Medium	Middle adulthood	Yes
R441	Low	Medium	High	Medium	Medium	Healthy	Low	Young adulthood	No
R442	High	Low	Medium	Low	Low	Healthy	Low	Middle adulthood	No
R443	Medium	Low	High	Low	Low	Healthy	Low	Young old	No
R444	Low	Low	High	Medium	Low	Overweight	Medium	Young adulthood	No
R445	High	Low	High	High	Medium	Obese	Medium	Middle adulthood	Yes
R446	Low	Low	High	Medium	Low	Healthy	Low	Middle adulthood	No
R447	Low	Low	High	Medium	Medium	Healthy	Medium	Young adulthood	No
R448	Medium	Low	Low	Low	Low	Healthy	Medium	Middle adulthood	No
R449	Medium	Low	Medium	Medium	Medium	Healthy	Medium	Young adulthood	No
R450	Low	High	High	High	High	Obese	Low	Middle adulthood	No
R451	Low	High	High	Medium	Medium	Healthy	Low	Middle adulthood	Yes
R452	Low	High	Medium	High	Medium	Overweight	Low	Young adulthood	Yes
R453	High	Medium	High	High	Medium	Healthy	Low	Young old	Yes
R454	Medium	Medium	High	High	Low	Overweight	Low	Middle adulthood	No
R455	Low	High	Medium	Medium	High	Obese	Low	Young adulthood	Yes
R456	Low	Low	Medium	High	Medium	Healthy	Low	Young adulthood	No
R457	Low	Medium	High	High	Medium	Obese	High	Young old	No
R458	High	Medium	High	Low	Low	Obese	Low	Old old	No
R459	Medium	Low	High	High	Low	Overweight	High	Young adulthood	Yes
R460	High	High	High	Low	Low	Healthy	Low	Old old	Yes
R461	High	High	High	High	Medium	Overweight	Low	Young old	Yes
R462	High	Medium	High	High	Medium	Overweight	Medium	Young old	Yes
R463	Medium	Medium	Medium	High	Low	Overweight	Low	Young old	Yes
R464	High	Medium	Medium	Medium	Low	Healthy	Low	Young old	Yes
R465	High	High	High	Medium	Medium	Overweight	Low	Young old	No
R466	Medium	High	Medium	Medium	Medium	Overweight	Medium	Young old	No
R467	High	Low	High	Low	Low	Overweight	Medium	Old old	No
R468	Medium	High	Medium	Low	Low	Overweight	Low	Middle adulthood	Yes
R469	Medium	Medium	High	Low	Low	Overweight	Medium	Young adulthood	Yes
R470	Medium	Medium	High	Low	Low	Under Weight	Medium	Old old	No
R471	Low	Medium	High	Medium	Medium	Healthy	Medium	Young adulthood	No
R472	Low	Medium	High	High	Medium	Obese	Low	Young old	Yes

R473	High	Low	High	Low	Low	Healthy	Medium	Middle adulthood	No
R474	High	Medium	Medium	High	Medium	Obese	Low	Young old	Yes
R475	High	Medium	High	Medium	High	Overweight	Low	Young old	Yes
R476	Medium	High	High	Medium	Medium	Overweight	Low	Middle adulthood	Yes
R477	Medium	Medium	High	Low	Medium	Overweight	Medium	Middle adulthood	No
R478	Medium	Medium	Medium	Low	Low	Obese	Medium	Young adulthood	No
R479	Medium	Medium	High	High	Low	Healthy	Medium	Young old	Yes
R480	Low	High	High	Medium	Low	Overweight	Medium	Old old	Yes
R481	Low	Medium	Low	Low	Low	Obese	Low	Young old	No
R482	High	Medium	Low	Low	Low	Under Weight	Low	Middle adulthood	Yes
R483	Low	Medium	Medium	Medium	High	Overweight	Low	Young adulthood	No
R484	Medium	High	Medium	Medium	High	Overweight	Low	Young adulthood	No
R485	Medium	Medium	High	Medium	Low	Overweight	Low	Young old	No
R486	High	Medium	Medium	High	Low	Obese	Low	Young old	Yes
R487	High	High	Medium	High	High	Overweight	Medium	Middle adulthood	Yes
R488	High	Low	Medium	Medium	Low	Healthy	Medium	Old old	No
R489	Medium	Low	High	Medium	Low	Overweight	Low	Old old	Yes
R490	Low	High	Medium	Medium	Medium	Healthy	Low	Young old	Yes
R491	Medium	Medium	High	Medium	Medium	Obese	Low	Young old	No
R492	Low	Medium	High	Low	Low	Overweight	Low	Young old	No
R493	Medium	Medium	High	High	Low	Obese	Low	Young old	No
R494	Low	High	High	Low	Low	Healthy	Low	Young adulthood	No
R495	Medium	Medium	High	Medium	Low	Healthy	Low	Middle adulthood	Yes
R496	High	Medium	High	Low	Low	Healthy	Low	Young adulthood	Yes
R497	High	Medium	High	High	Medium	Obese	Medium	Young old	Yes
R498	High	Medium	High	Low	Low	Overweight	Medium	Young old	Yes
R499	High	High	High	High	Medium	Obese	High	Young old	No
R500	High	Low	High	High	Medium	Overweight	Medium	Young old	No
R501	Low	Low	High	High	Low	Obese	High	Middle adulthood	No
R502	Medium	High	Medium	Low	Low	Healthy	Low	Young old	Yes
R503	Medium	Medium	Medium	Low	Low	Overweight	High	Young adulthood	Yes
R504	Low	Medium	High	High	Low	Obese	Low	Middle adulthood	No
R505	Low	Medium	High	High	Medium	Overweight	High	Middle adulthood	Yes
R506	Low	Medium	Medium	Low	Low	Overweight	Low	Old old	Yes
R507	High	High	High	High	Low	Obese	Low	Young old	Yes
R508	High	Low	High	High	Medium	Overweight	Low	Old old	No
R509	Low	Medium	Medium	Low	Low	Overweight	Low	Young old	Yes

B. The rule base of MB-WM for the PID data set

TABLE S-5: The rule base of MB-WM for the PID data set

	Pregnancies	Glucose	BloodPressure	SkinThickness	BMI	DPF	Outcome
R1	Medium	Medium	Medium	High	Overweight	Medium	No
R2	Low	Low	Medium	Medium	Healthy	Low	No
R3	High	High	Medium	Low	Healthy	Medium	Yes
R4	Low	Medium	Medium	High	Obese	High	Yes
R5	Medium	Medium	High	Low	Healthy	Low	No
R6	Medium	Low	Medium	High	Overweight	Low	No
R7	High	Medium	Low	Low	Overweight	Low	No
R8	Low	High	Medium	High	Overweight	Low	Yes
R9	High	Medium	High	Low	Under Weight	Low	Yes
R10	Medium	Medium	High	Low	Overweight	Low	No
R11	High	High	High	Low	Overweight	Medium	Yes
R12	High	Medium	High	Low	Healthy	High	No
R13	Low	High	Medium	Medium	Overweight	Low	Yes
R14	Medium	High	Medium	Medium	Healthy	Medium	Yes
R15	High	Low	Low	Low	Overweight	Medium	Yes
R16	Low	Medium	High	High	Obese	Medium	Yes

R17	High	Low	High	Low	Overweight	Low	No
R18	Low	Low	Low	High	Obese	Low	No
R19	Low	Medium	Medium	Medium	Overweight	Medium	No
R20	Medium	Medium	High	High	Obese	Medium	No
R21	High	High	High	Low	Obese	Low	Yes
R22	High	Medium	High	High	Healthy	Low	Yes
R23	High	Medium	High	High	Overweight	Low	Yes
R24	High	Medium	Medium	Medium	Overweight	Low	Yes
R25	High	Medium	High	Low	Obese	Low	No
R26	Low	Low	Medium	Medium	Healthy	Medium	No
R27	High	Medium	High	Medium	Healthy	Low	No
R28	Medium	Medium	High	Medium	Overweight	Medium	Yes
R29	Medium	High	High	High	Overweight	Medium	Yes
R30	Medium	Low	Medium	Low	Healthy	Low	No
R31	Medium	Low	High	Low	Healthy	Low	No
R32	High	Medium	High	High	Healthy	Medium	Yes
R33	Medium	Low	Medium	High	Healthy	Medium	No
R34	High	Medium	High	Low	Overweight	Low	No
R35	High	Low	High	High	Overweight	Medium	Yes
R36	Low	Low	Medium	High	Overweight	Medium	No
R37	Medium	Medium	Medium	High	Overweight	High	Yes
R38	Medium	High	Medium	Medium	Overweight	Low	No
R39	High	Medium	High	Low	Obese	Medium	Yes
R40	High	Low	High	Medium	Healthy	Low	No
R41	High	High	High	Medium	Obese	Medium	Yes
R42	High	High	Medium	Low	Healthy	Low	No
R43	Low	High	Medium	High	Obese	High	Yes
R44	Low	Medium	Medium	Low	Overweight	Medium	No
R45	High	Low	Medium	High	Obese	Low	No
R46	High	Low	Low	Low	Under Weight	Low	No
R47	Low	Low	High	Low	Healthy	Medium	Yes
R48	Medium	Low	Medium	Medium	Healthy	Low	No
R49	High	High	High	High	Overweight	Low	Yes
R50	High	High	Medium	High	Overweight	Medium	Yes
R51	Low	Low	Medium	Low	Healthy	Low	No
R52	High	High	Medium	High	Overweight	Low	Yes
R53	Low	Low	High	High	Obese	Medium	No
R54	Low	Medium	High	Low	Obese	High	No
R55	Low	Low	Medium	High	Obese	Low	No
R56	Low	Low	Low	Low	Under Weight	Low	No
R57	High	Medium	Medium	Low	Overweight	Low	No
R58	Medium	Low	Medium	Low	Healthy	Medium	No
R59	Low	Medium	Medium	High	Healthy	Medium	No
R60	Medium	Low	High	Medium	Healthy	Low	No
R61	Low	Medium	High	Medium	Overweight	Medium	No
R62	Low	Medium	High	Low	Obese	Medium	Yes
R63	Medium	Medium	High	Medium	Healthy	Low	Yes
R64	Low	Low	Medium	Medium	Overweight	Medium	No
R65	Medium	Medium	Medium	High	Healthy	Low	No
R66	Medium	Medium	High	Medium	Overweight	Low	No
R67	Low	Low	High	Medium	Overweight	Low	Yes
R68	Low	Medium	Low	Low	Obese	Low	Yes
R69	Low	Medium	Medium	Medium	Healthy	Low	No
R70	Medium	Medium	Medium	Medium	Healthy	Low	No
R71	High	Low	High	Medium	Healthy	Medium	No

R72	Medium	Medium	High	Low	Obese	Low	Yes
R73	High	Low	Medium	High	Overweight	Low	No
R74	Low	Low	Medium	Medium	Obese	Low	No
R75	High	Medium	Medium	High	Overweight	Low	No
R76	High	Low	High	High	Obese	Low	No
R77	Medium	Medium	Medium	Low	Healthy	Low	No
R78	Low	Medium	High	Medium	Healthy	Medium	No
R79	Medium	Medium	Medium	Medium	Overweight	Low	No
R80	Low	Low	Medium	Medium	Overweight	Low	No
R81	Low	Medium	High	High	Obese	Low	Yes
R82	Low	High	Medium	Low	Obese	High	Yes
R83	Low	High	Medium	Low	Healthy	Low	No
R84	Low	Medium	High	Low	Healthy	Low	No
R85	Low	Low	Medium	Low	Obese	Medium	No
R86	Low	Medium	Medium	Medium	Healthy	Medium	No
R87	Low	Low	High	Low	Healthy	Low	No
R88	Medium	High	Medium	High	Overweight	Low	Yes
R89	High	High	Medium	Medium	Overweight	Medium	Yes
R90	Low	Low	High	High	Overweight	Low	No
R91	Medium	Low	Medium	Low	Overweight	Low	Yes
R92	Medium	Medium	High	Low	Overweight	Medium	Yes
R93	Medium	Low	Medium	Low	Overweight	Medium	No
R94	Low	High	High	High	Obese	Medium	Yes
R95	Medium	Medium	Medium	High	Overweight	Low	Yes
R96	Low	Medium	High	Low	Overweight	Low	No
R97	Low	Low	Low	High	Obese	Medium	Yes
R98	Medium	Medium	Medium	Medium	Obese	Low	No
R99	Low	Medium	Medium	High	Overweight	Low	Yes
R100	Low	Medium	High	Medium	Overweight	Low	Yes
R101	High	Medium	Medium	Low	Overweight	High	Yes
R102	High	Low	High	High	Overweight	Low	No
R103	Low	Medium	Medium	Medium	Overweight	Low	No
R104	Low	Medium	High	Low	Overweight	Medium	Yes
R105	Medium	Low	Medium	Medium	Overweight	Low	No
R106	Medium	Low	High	Medium	Obese	Low	No
R107	High	Low	Medium	Low	Overweight	Low	No
R108	Low	Low	High	Medium	Under Weight	Medium	No
R109	Low	Low	Medium	High	Overweight	High	No
R110	Low	Medium	High	High	Overweight	Low	No
R111	High	High	High	Medium	Overweight	High	Yes
R112	High	High	High	High	Obese	Low	Yes
R113	Low	Low	High	Medium	Healthy	Low	No
R114	High	High	Medium	High	Obese	Medium	Yes
R115	Medium	High	High	High	Overweight	Low	Yes
R116	Medium	Low	High	Medium	Overweight	Medium	No
R117	Medium	Medium	Medium	Low	Overweight	Medium	No
R118	Medium	Medium	Medium	Low	Overweight	Low	Yes
R119	Medium	Medium	High	Medium	Healthy	Medium	No
R120	Medium	Low	High	Low	Overweight	Low	Yes
R121	Medium	Medium	Medium	Medium	Overweight	Medium	Yes
R122	Low	Low	Low	Medium	Healthy	Medium	No
R123	Low	Low	Medium	High	Obese	Medium	No
R124	Medium	Medium	High	Low	Obese	Medium	Yes
R125	Low	Medium	High	High	Overweight	High	Yes
R126	Medium	Medium	High	High	Overweight	Low	Yes

R127	High	High	Medium	Low	Overweight	Low	No
R128	High	Medium	Low	Low	Obese	Medium	Yes
R129	High	Low	Medium	Medium	Healthy	Low	No
R130	Medium	High	High	High	Obese	Low	Yes
R131	Medium	Low	Medium	Medium	Healthy	Medium	No
R132	Low	Medium	High	Low	Obese	Low	No
R133	High	High	High	Medium	Overweight	Medium	Yes
R134	Medium	High	High	Low	Overweight	Low	Yes
R135	Low	Medium	Medium	Medium	Obese	Low	Yes
R136	Medium	Low	High	Medium	Healthy	High	Yes
R137	Low	High	Medium	Medium	Overweight	High	Yes
R138	Low	High	High	Low	Overweight	Medium	Yes
R139	High	Medium	Low	Low	Healthy	Low	No
R140	High	Medium	Medium	High	Healthy	Medium	No
R141	Low	Low	High	Low	Overweight	Low	No
R142	Medium	High	Medium	High	Overweight	Medium	Yes
R143	Medium	High	Medium	High	Overweight	High	No
R144	Medium	Medium	High	High	Obese	Low	Yes
R145	Low	Low	High	Medium	Healthy	Medium	No
R146	Medium	High	Medium	Low	Obese	Medium	Yes
R147	Low	High	High	Medium	Obese	Medium	Yes
R148	Medium	Medium	Medium	Medium	Healthy	High	Yes
R149	Low	High	High	High	Obese	Low	Yes
R150	Low	Low	Medium	High	Overweight	Low	No
R151	High	Low	Medium	Low	Healthy	Medium	Yes
R152	Low	Medium	Medium	High	Overweight	Medium	Yes
R153	Low	High	Medium	Medium	Healthy	Medium	No
R154	Medium	Medium	Low	Low	Overweight	Medium	Yes
R155	Medium	Low	Medium	High	Overweight	Medium	No
R156	Low	Medium	Low	Low	Overweight	Medium	No
R157	Low	Medium	Low	Low	Healthy	Low	Yes
R158	High	Low	High	High	Obese	High	Yes
R159	Low	Low	Medium	High	Healthy	Low	No
R160	Medium	Medium	High	Low	Healthy	Medium	No
R161	Low	Low	Medium	Low	Healthy	Medium	No
R162	Low	Medium	Medium	Low	Overweight	Low	Yes
R163	High	Medium	High	Medium	Overweight	Low	No
R164	High	High	High	Low	Overweight	Low	Yes
R165	High	Medium	High	Medium	Healthy	Medium	Yes
R166	Medium	High	High	High	Obese	Medium	No
R167	Low	Medium	High	High	Obese	High	Yes
R168	Low	Medium	Medium	High	Obese	Medium	Yes
R169	Low	Medium	Medium	High	Healthy	Low	Yes
R170	High	Low	High	Medium	Overweight	Low	No
R171	High	Medium	Medium	Low	Healthy	Medium	Yes
R172	Low	High	Low	Low	Overweight	Medium	Yes
R173	Medium	Low	High	High	Overweight	Low	No
R174	Medium	High	High	Low	Healthy	Low	Yes
R175	High	High	Medium	Medium	Healthy	Low	Yes
R176	Low	Medium	Medium	Medium	Overweight	High	Yes
R177	Low	High	High	Medium	Healthy	Low	Yes
R178	High	Medium	High	High	Overweight	High	Yes
R179	Medium	Medium	Medium	Medium	Healthy	Medium	No
R180	High	High	High	High	Healthy	Medium	Yes
R181	Low	High	Medium	Medium	Healthy	Low	No

R182	Low	Low	High	High	Obese	Low	Yes
R183	High	Medium	Medium	Medium	Healthy	High	No
R184	Low	High	Low	Low	Obese	Low	Yes
R185	High	Low	High	Low	Healthy	Low	No
R186	High	High	High	High	Overweight	Medium	Yes
R187	High	Low	Medium	Low	Overweight	Medium	No
R188	High	Medium	High	High	Obese	Low	No
R189	Medium	Medium	Low	Low	Healthy	Low	No
R190	Medium	Low	High	High	Obese	Low	No
R191	Medium	Low	High	Low	Obese	Low	No
R192	Medium	Low	High	Medium	Overweight	Low	No
R193	Medium	Low	High	Low	Obese	Medium	No
R194	High	Medium	Low	Medium	Obese	Medium	Yes
R195	Low	High	High	High	Overweight	Medium	Yes
R196	Medium	High	Medium	Low	Overweight	Low	Yes
R197	Medium	Low	Medium	Medium	Overweight	Medium	No
R198	Medium	High	High	High	Obese	High	Yes
R199	Low	Medium	Medium	Medium	Under Weight	High	No
R200	High	Medium	High	High	Obese	Medium	Yes
R201	Medium	High	High	Low	Obese	Low	Yes
R202	Low	Medium	Medium	Low	Healthy	Medium	No
R203	Low	Low	Medium	Medium	Healthy	High	No
R204	Medium	High	High	Low	Overweight	Medium	Yes
R205	Low	Medium	Medium	Medium	Healthy	High	No
R206	High	High	High	Low	Healthy	High	Yes
R207	Low	High	Medium	High	Obese	Medium	Yes
R208	Medium	Low	High	High	Overweight	Medium	No
R209	Low	Medium	High	Medium	Obese	High	No
R210	Low	Medium	High	Medium	Healthy	Low	No
R211	High	High	High	High	Obese	Medium	Yes
R212	Low	Low	Low	Low	Healthy	Low	No
R213	Low	Low	High	Low	Overweight	Medium	No
R214	Low	Low	Medium	Low	Healthy	High	No
R215	Medium	Low	High	Low	Overweight	Medium	No
R216	Low	High	High	Medium	Overweight	Low	Yes
R217	Low	High	High	High	Obese	High	Yes
R218	Low	Medium	Low	Low	Healthy	Medium	No
R219	High	High	Medium	Medium	Overweight	Low	Yes
R220	High	Medium	High	High	Overweight	Medium	Yes
R221	High	Medium	Medium	Medium	Healthy	Medium	No
R222	High	Low	Medium	High	Overweight	Medium	No
R223	High	Medium	High	Low	Healthy	Medium	No
R224	Low	Low	High	High	Overweight	Medium	Yes
R225	Medium	Medium	High	High	Healthy	Low	No
R226	Low	Medium	Low	Low	Obese	Medium	Yes
R227	Low	Medium	Medium	High	Obese	Low	Yes
R228	High	High	High	Low	Healthy	Medium	No
R229	Medium	Low	Low	Low	Under Weight	Low	No
R230	High	High	Medium	High	Healthy	Low	Yes
R231	Medium	High	High	High	Healthy	Medium	No
R232	Medium	Low	Medium	High	Obese	Medium	Yes
R233	High	Low	Medium	Medium	Overweight	Medium	No
R234	High	Medium	High	Low	Healthy	Low	Yes
R235	High	Low	Medium	Low	Healthy	Low	No
R236	Medium	Medium	Low	Low	Under Weight	Low	No

R237	High	Medium	Medium	Low	Overweight	Medium	Yes
R238	Low	Low	High	Low	Obese	Medium	No
R239	Medium	Low	Low	Low	Overweight	Medium	No
R240	Low	Low	Medium	Medium	Overweight	High	No
R241	Medium	Medium	Low	Low	Overweight	Low	Yes
R242	Low	Medium	High	High	Overweight	Medium	No
R243	Medium	Medium	High	High	Overweight	Medium	Yes
R244	High	Low	High	High	Obese	Medium	Yes
R245	Medium	High	High	Medium	Obese	High	Yes
R246	Low	High	High	High	Overweight	Low	No
R247	High	Medium	Medium	High	Healthy	Low	No
R248	High	Medium	Medium	Low	Healthy	Low	No
R249	Low	High	Medium	High	Overweight	Medium	Yes
R250	High	Low	High	Low	Obese	Low	No
R251	Medium	High	High	Medium	Overweight	High	Yes
R252	Low	High	High	Medium	Overweight	Medium	Yes
R253	Low	Low	High	Low	Obese	Low	No
R254	Low	High	High	Low	Overweight	Low	Yes
R255	Medium	Low	Low	Low	Healthy	Low	No
R256	Low	Medium	High	High	Healthy	Low	No
R257	Medium	High	Low	Low	Healthy	Low	Yes
R258	Medium	High	Medium	Medium	Overweight	Medium	Yes
R259	High	Medium	High	Medium	Overweight	Medium	Yes
R260	High	Medium	High	Medium	Healthy	High	Yes
R261	Low	Medium	Low	Low	Overweight	Low	Yes
R262	Low	Low	High	Medium	Healthy	High	No
R263	Medium	High	High	Low	Obese	High	No
R264	Low	Low	Medium	Low	Overweight	Low	No
R265	Low	Medium	Medium	Low	Healthy	Low	No
R266	Low	Low	High	Medium	Overweight	Medium	No
R267	Medium	Low	Low	Low	Healthy	Medium	No
R268	Low	High	Medium	Medium	Obese	Low	Yes
R269	Medium	Low	High	High	Overweight	High	Yes
R270	High	High	High	Low	Healthy	Low	Yes
R271	High	Medium	Medium	Medium	Healthy	Low	Yes
R272	High	High	High	Medium	Overweight	Low	No
R273	High	Low	High	Low	Overweight	Medium	No
R274	Medium	Medium	High	Low	Under Weight	Medium	No
R275	High	Low	High	Low	Healthy	Medium	No
R276	High	Medium	Medium	High	Obese	Low	Yes
R277	Medium	High	High	Medium	Overweight	Low	Yes
R278	Medium	Medium	Medium	Low	Obese	Medium	No
R279	Medium	Medium	High	High	Healthy	Medium	Yes
R280	High	Medium	Low	Low	Under Weight	Low	Yes
R281	High	Low	Medium	Medium	Healthy	Medium	No
R282	Medium	Medium	High	Medium	Obese	Low	No
R283	Low	High	High	Low	Healthy	Low	No
R284	High	Medium	High	Low	Overweight	Medium	Yes
R285	High	High	High	High	Obese	High	No
R286	Low	Low	High	High	Obese	High	No
R287	Medium	High	Medium	Low	Healthy	Low	Yes
R288	Medium	Medium	Medium	Low	Overweight	High	Yes

C. The rule base of MBCD-WM for the PID data set

TABLE S-6
THE RULE BASE OF THE PID DATA SET OF MB-CDWM

	Pregnancies	Glucose	DPF	Outcome
R1	High	High	Medium	Yes
R2	Low	Medium	High	Yes
R3	High	Medium	Low	Yes
R4	Low	High	Low	Yes
R5	Medium	High	Medium	Yes
R6	Medium	High	Low	Yes
R7	Low	High	Medium	Yes
R8	High	Medium	Medium	Yes
R9	High	Low	Medium	Yes
R10	Medium	Medium	High	Yes
R11	Low	High	High	Yes
R12	High	High	High	Yes
R13	Medium	Low	High	Yes
R14	High	Low	High	Yes
R15	Medium	Medium	Medium	No
R16	Low	Low	Low	No
R17	Medium	Medium	Low	No
R18	High	Medium	High	No
R19	Medium	Low	Medium	No
R20	Low	Medium	Medium	No
R21	Medium	Low	Low	No
R22	High	Low	Low	No
R23	Low	Low	Medium	No
R24	High	High	Low	No
R25	Low	Medium	Low	No
R26	Low	Low	High	No
R27	Medium	High	High	No

VIII. THE RULE BASE OF FURIA, MB-FUIRA AND MBCD-FURIA FOR THE PID DATA SET

TABLE S-7
THE RULE BASE OF FURIA FOR THE PID DATA SET

	IF	THEN
R1	Glusoce is [0.7739, 0.7789, inf, inf]	Outcome is Yes. (CF = 0.8)
R2	Age is [0.1500, 0.1667, inf, inf] AND Glucose is [0.6131, 0.6181, inf, inf] and BMI is [0.4471, 0.4486, inf, inf]	Outcome is Yes. (CF = 0.75)
R3	Glucose is [-inf, -inf, 0.6181, 0.6432] AND Age is [-inf, -inf, 0.1167, 0.1333] AND BMI is [-inf, -inf, 0.4605, 0.4620]	Outcome is No (CF = 0.98)
R4	Glucose is [-inf, -inf, 0.5025, 0.5075]	Outcome is No. (CF = 0.9)
R5	Glucose is [0.6281, 0.6332, 0.7186, 0.7337] AND BMI is [-inf, -inf, 0.4292, 0.4307]	Outcome is No. (CF = 0.87)
R6	Glucose is [-inf, -inf, 0.7186, 0.7638] AND BMI is [-inf, -inf, 0.4069, 0.4083]	Outcome is No. (CF = 0.95)
R7	Glucose is [-inf, -inf, 0.5528, 0.5578] AND DPF is [-inf, -inf, 0.0739, 0.0751]	Outcome is No. (CF = 0.92)
R8	Glucose is [-inf, -inf, 0.6482, 0.6583] AND Age is [-inf, -inf, 0.1500, 0.1667]	Outcome is No. (CF = 0.88)
R9	Glucose is [-inf, -inf, 0.7739, 0.7789] AND Age is [-inf, -inf, 0.1500, 0.1667] AND Blood Pressure is [0, 0.6066, inf, inf]	Outcome=No. (CF = 0.86)

TABLE S-8
THE RULE BASE OF MB-FURIA FOR THE PID DATA SET

	IF	THEN
R1	Glucose is [0.798995, 0.809045, inf, inf]	Outcome is Yes. (CF = 0.81)
R2	Glucose is [0.638191, 0.643216, inf, inf] AND BMI is [0.445604, 0.451565, inf, inf]	Outcome is Yes. (CF = 0.72)
R3	Glucose is [-inf, -inf, 0.61809, 0.623116]	Outcome is No. (CF = 0.82)
R4	BMI is [-inf, -inf, 0.447094, 0.448584] and Glucose is [0.628141, 0.633166, 0.728643, 0.733668]	Outcome is No. (CF = 0.84)
R5	Glucose is [-inf, -inf, 0.798995, 0.809045] and DPF is [-inf, -inf, 0.107173, 0.109308]	Outcome is No. (CF = 0.79)

TABLE S-9
THE RULE BASE OF MBCD-FURIA FOR THE PID DATA SET

	IF	THEN
R1	Glucose is [0.7739, 0.7789, inf, inf]	Outcome is Yes. (CF = 0.81)
R2	Glucose is [0.6382, 0.6432, inf, inf] AND BMI is [0.4456, 0.4516, inf, inf]	Outcome is Yes. (CF = 0.72)
R3	Glucose is [-inf, -inf, 0.6181, 0.6231]	Outcome is No. (CF = 0.82)

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