PhenX Toolkit

Data Collection Worksheet

Please Note: The Data Collection Worksheet (DCW) is a tool to aid integration of a PhenX protocol into a study. The PhenX DCW is not designed to be a data collection instrument. Investigators will need to decide the best way to collect data for the PhenX protocol in their study. Variables captured in the DCW, along with variable names and unique PhenX variable identifiers, are included in the PhenX Data Dictionary (DD) files.

Monetary-Choice Questionnaire

For each of the next 27 choices, please indicate which reward you would prefer: the smaller reward today, or the larger reward in the specified number of days.

1. Would you prefer $54 today, or $55 in 117 days?

   [ ] smaller reward today

   [ ] larger reward in the specified number of days

2. Would you prefer $55 today, or $75 in 61 days?

   [ ] smaller reward today

   [ ] larger reward in the specified number of days

3. Would you prefer $19 today, or $25 in 53 days?

   [ ] smaller reward today

   [ ] larger reward in the specified number of days

4. Would you prefer $31 today, or $85 in 7 days?

   [ ] smaller reward today

   [ ] larger reward in the specified number of days

5. Would you prefer $14 today, or $25 in 19 days?

   [ ] smaller reward today

   [ ] larger reward in the specified number of days

6. Would you prefer $47 today, or $50 in 160 days?

   [ ] smaller reward today

[ ] larger reward in the specified number of days

7. Would you prefer $15 today, or $35 in 13 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

8. Would you prefer $25 today, or $60 in 14 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

9. Would you prefer $78 today, or $80 in 162 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

10. Would you prefer $40 today, or $55 in 62 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

11. Would you prefer $11 today, or $30 in 7 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

12. Would you prefer $67 today, or $75 in 119 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

13. Would you prefer $34 today, or $35 in 186 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

14. Would you prefer $27 today, or $50 in 21 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

15. Would you prefer $69 today, or $85 in 91 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

16. Would you prefer $49 today, or $60 in 89 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

17. Would you prefer $80 today, or $85 in 157 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

18. Would you prefer $24 today, or $35 in 29 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

19. Would you prefer $33 today, or $80 in 14 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

20. Would you prefer $28 today, or $30 in 179 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

21. Would you prefer $34 today, or $50 in 30 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

22. Would you prefer $25 today, or $30 in 80 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

23. Would you prefer $41 today, or $75 in 20 days?

[ ] smaller reward today

[ ] larger reward in the specified number of days

24. Would you prefer $54 today, or $60 in 111 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

25. Would you prefer $54 today, or $80 in 30 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

26. Would you prefer $22 today, or $25 in 136 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

27. Would you prefer $20 today, or $55 in 7 days?

    [ ] smaller reward today

    [ ] larger reward in the specified number of days

Scoring

A participant's discounting curve may be calculated according to the following function:

$V = A/(1+kD)$

V is the present value of the delayed reward A at delay D, and k is the rate of discounting; k typically falls between 0.0 and 0.5, with smaller values indicating a lack of discounting and preference for delayed rewards and higher values indicating strong discounting and a preference for immediate rewards. Thus higher values of k are indicative of high levels of impulsivity.

There are two ways of scoring the Monetary-Choice Questionnaire. The first involves hand scoring to get an estimate of k following the guidelines given in Kirby (2000). The second involves fitting a logistic regression function to individual responses following procedures described in Wileyto et al. (2004).

Estimating Discounting Rate

The following table lists the calculated k values (the degree of discounting) at indifference for each question (i.e., when the subjective value of the immediate and delayed rewards are equivalent).

Question	k at indifference
13	.00016
1	.00016
9	.00016
20	.00040
6	.00040
17	.00040
26	.0010
24	.0010
12	.0010
22	.0025
16	.0025
15	.0025
3	.0060
10	.0060

2	.0060
18	.016
21	.016
25	.016
5	.041
14	.041
23	.041
7	.10
8	.10
19	.10
11	.25
27	.25
4	.25

An estimate of the respondent's discounting rate can be calculated as the geometric mean (to avoid underweighting) of the *k at indifference* between the two questions that reflect when the respondent changes between choosing the delayed reward versus the immediate reward. In cases where the respondent's change between preferring the delayed versus the immediate reward is not consistent, the two questions that are most proportional to their responses are chosen. If the participant always chooses the immediate reward or the delayed

reward, the estimation of k is equal to one of the endpoints (0.25 or 0.00016).