Supplemental Digital Content

Supplemental Digital Content 1. Table of recalled time to pregnancy and prospective time to pregnancy among women with prospective pregnancy attempt times ≥ 13 cycles. .PDF

Supplemental Digital Content 2. Text describing the methods and results for the analysis of accurate reporting of time to pregnancy. .PDF

Supplemental Digital Content 3. Table of maternal and pregnancy-related characteristics associated with accurate reporting of time to pregnancy. .PDF

Supplemental Digital Content 4. Table of maternal and pregnancy-related characteristics associated with accurate reporting of time to pregnancy, among women who conceived a recognized pregnancy during Phase 1. (Total N=119) .PDF

Table 1. Characteristics of women who have a recalled TTP available for analysis compared with those without a recalled TTP (Total N=202) [a]. All characteristics were measured at enrollment into EPS Phase 1 or during Phases 1 and 2.

	Recalled TTP available N=154 (76%)	Recalled TTP not available[b] N=48 (24%)	P-value from the multivariable model[c]
EPS Phase 1 outcome			
Did not conceive within 6 months	35 (74)	12 (26)	
Recognized miscarriage[d]	14 (74)	5 (26)	
Live birth[d]	105 (77)	31 (23)	
Prospective TTP[e]			
1	44 (83)	9 (17)	0.08
2	33 (87)	5 (13)	
3 – 4	33 (70)	14 (30)	
5 – 7	17 (63)	10 (37)	
8 – 12	13 (76)	4 (24)	
≥13	14 (70)	6 (30)	
Age			
< 29	76 (79)	20 (21)	
≥ 29	78 (74)	28 (26)	
Race			
Asian or Pacific Islander, Black, or other	5 (62)	3 (38)	
White	149 (77)	45 (21)	

Education			
High school graduate or less	6 (46)	7 (54)	0.45
Some college or college graduate	92 (74)	32 (26)	
At least some graduate school	56 (86)	9 (14)	
Occupation			
Sales/Service/Factory	12 (67)	6 (33)	0.003
Other white collar	60 (71)	25 (29)	
Teaching	23 (92)	2 (8)	
Management/Administration	9 (47)	10 (53)	
Health professional	39 (91)	4 (9)	
Academia/Science	11 (92)	1 (8)	
Body mass index (kg/m^2)			
< 20	61 (81)	14 (19)	0.26
20- < 25	83 (76)	26 (24)	
≥ 25	10 (56)	8 (44)	
Gravidity[c]			
0	56 (80)	14 (20)	0.01
1	60 (85)	11 (15)	
≥ 2	38 (62)	23 (38)	
Parity[c]			
0	75 (79)	20 (21)	0.04
1	64 (79)	17 (21)	
≥ 2	15 (58)	11 (42)	

Smoking			
Never	110 (79)	29 (21)	0.008
Current	3 (25)	9 (75)	
Former	41 (80)	10 (20)	
Alcohol intake (drinks per month)			
0 - 1	61 (73)	23 (27)	
2 – 8	81 (80)	20 (20)	
> 8	12 (71)	5 (29)	
Caffeine intake (mg/month)			
0 - 1480	45 (82)	10 (18)	0.24
> 1480 - < 6900	82 (80)	21 (20)	
≥ 6900	27 (61)	17 (39)	

[a] This table excludes the 19 women (of 221) who did not complete Phase 1.

[b] TTP is unavailable for women who were deceased at Phase 3 (N=11), did not respond to the Phase 3 questionnaire (either by mail or by phone) (N=31), or responded to the questionnaire but did not provide an estimate of TTP (N=6).

[c] The multivariable logistic regression model only included variables that were important ($p \leq 0.2$) in the univariable analysis: prospective TTP, education, occupation, BMI, gravidity, parity, smoking and caffeine intake. Gravidity and parity were estimated in separate models. With the exception of parity, p-values are estimated from the model that includes gravidity (and not parity).P-values are from a likelihood ratio test which indicates whether the tested characteristics differ between those with and without recalled time-to-pregnancy data.

[d] Among women who conceived within 6 months.

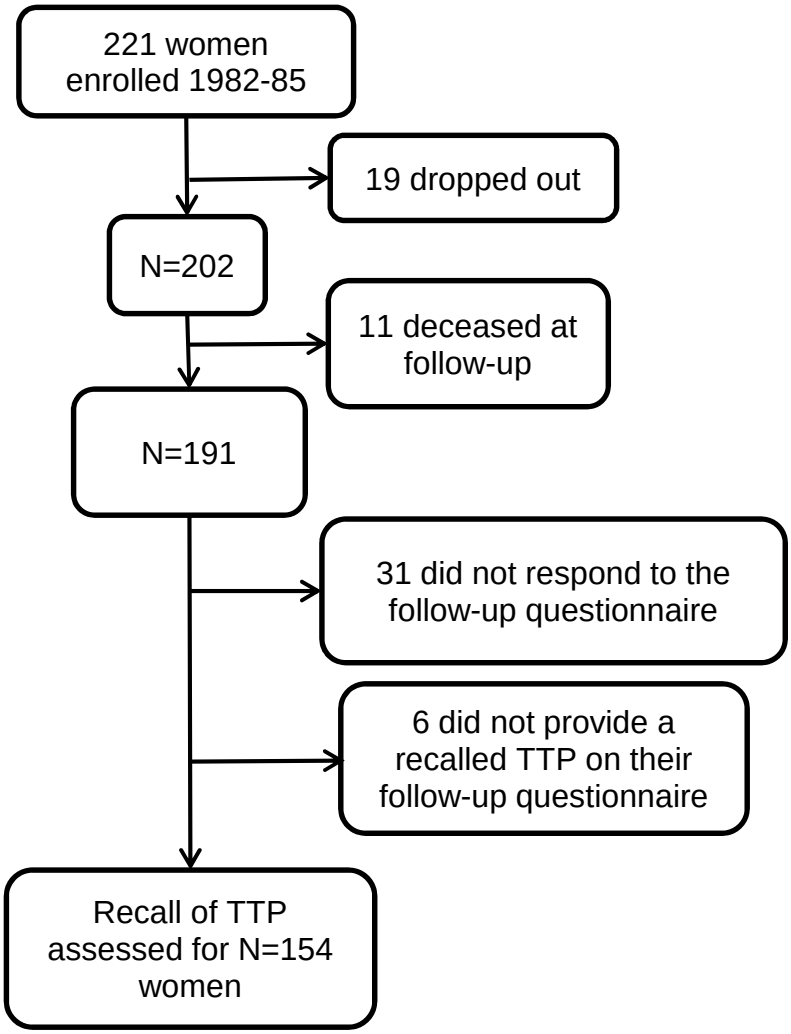
[e] One woman with a prospective TTP of >6 was classified as 5-7 cycles.

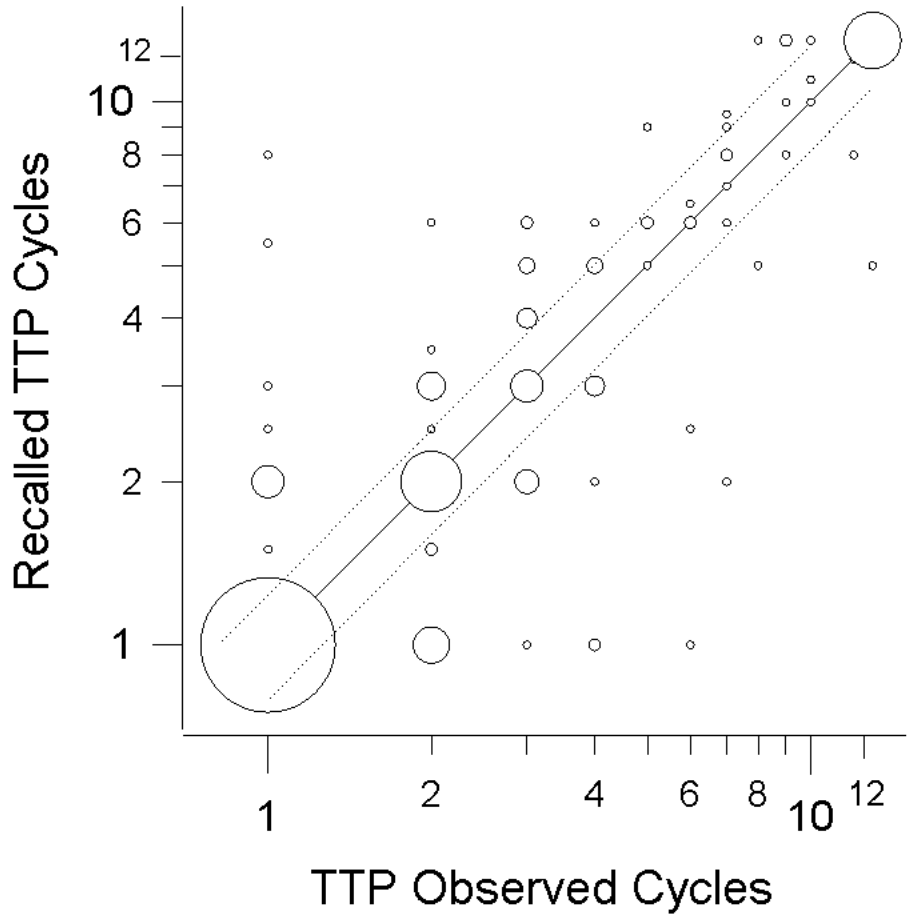
Table 2. Comparison of prospective and recalled TTP from 153 participants in the EPS[a].

			Prospective TTP (cycles)					
Recalled TTP (cycles)	N	PPV	1	2	3 – 4	5 – 7	8 – 12	≥13
			N	N	N	N	N	N
1	44	73	32	8	3	1	0	0
2	31	52	8	16	6	1	0	0
3 – 4	26	58	2	8	15	1	0	0
5 – 7	21	38	1	1	9	8	1	1
8 - 12	12	50	1	0	0	5	6	0
≥13	19	68	0	0	0	0	6	13

[a] Categories of TTP were chosen to reflect intervals of similar magnitude on a fecundability scale.

PPV = Positive Predictive Value


221 women enrolled 1982-85
19 dropped out
N=202
11 deceased at follow-up
N=191
31 did not respond to the follow-up questionnaire
6 did not provide a recalled TTP on their follow-up questionnaire
Recall of TTP assessed for N=154 women


Recalled TTP Cycles
12
10
8
6
4
2
1
1
2
4
6
8
10
12
TTP Observed Cycles

Supplemental Digital Content 1. Recalled TTP and prospective TTP among women with prospective pregnancy attempt times ≥ 13 cycles. (From a total N=202)

Prospective TTP [a]	Recalled TTP [b]
>5	.
> 6	77
>8	.
>10	.
14	14
14	18
>13	.
>14	> 24
17	24
20	.
20	18
> 24	90
>24	.
27	4 - 6
27	.
28	23
> 29	48
> 29	15
> 33	36
> 33	48
> 36	72
> 36	50
>47	.
>50	.

[a] Table includes 4 women who stopped trying at <13 cycles because their eventual TTPs could have been ≥13 cycles. “>” indicates TTP was calculated from a contact date or a “stopped trying” date; TTP is therefore greater than the observed number. One cycle was subtracted from these TTPs because a woman could be pregnant at contact, and not yet aware.

[b] "." Indicates that participant did not provide a recalled TTP.

Supplemental Digital Content 2

Methods

"Accurate" reporting. To examine maternal factors associated with good or poor reporting, we categorized responses as "accurate" or "inaccurate". The inverse of TTP provides a maximum likelihood estimate of an important reproductive endpoint: fecundability. We examined accuracy of reporting by comparing women's recalled and prospective estimates of fecundability categorizing responses as "accurate" if the difference between prospective and recalled fecundability estimates (the "fecundability difference") was no greater than 25%:

$$accurate\text{: } 0.25 \geq \left| \frac{\left(\left(\frac{1}{recalled\ TTP}\right) - \left(\frac{1}{prospective\ TTP}\right)\right)}{\left(\frac{1}{prospective\ TTP}\right)} \right|$$

Equivalently, recalled TTP is "accurate" if:

$$\frac{4}{5} \leq \frac{recalled\ TTP}{prospective\ TTP} \leq \frac{4}{3}$$

Assessing accuracy in this way better captures the scale differences in errors of recall, in which an error of one added cycle in recall is more important for a true TTP of one cycle (fecundability difference = 0.5) than six cycles (fecundability difference= 0.004). This equation thus gives more weight to important differences in the fecundability estimates. If women reported their TTP as a range, we used the midpoint of the range to calculate accuracy (i.e. if "1-2" was reported, "1.5" was used).

Given the clinical definition of infertility,[1] and the right-censoring anticipated for an actual analysis, we classified everyone with a prospective TTP of at least 13 cycles as "accurate" if her recalled TTP was also at least 13 cycles (N=14, see Table, Supplemental Digital Content 1). Most of the TTPs that were captured as an open-ended range were also at least 13 cycles, and accuracy could be defined as described above (see Table, Supplemental Digital Content 1). One woman, however, reported more than 3 cycles of TTP while the prospective was 2 and she was classified as inaccurate (see Table, Supplemental Digital Content 1). We excluded one woman for whom the prospective TTP was >6 cycles as this did not provide enough detail to assess accuracy, given that the recalled TTP was 77 cycles (see Table, Supplemental Digital Content 1). This left 153 women in the analysis of accuracy.

In addition to the characteristics described in Table 1, we used data from the Phase 3 questionnaire to examine the associations of accuracy with the woman's lifetime gravidity and parity, and whether she had grandchildren (having grandchildren may stimulate recollections on the birth of the index child). We included characteristics that were important in the univariable analysis ($p<0.2$) in a multivariable model to assess their adjusted associations with the accuracy of recalled TTP. We performed a sensitivity analysis by limiting our sample to women who conceived during Phase 1 (the entire TTP was prospectively observed for this subset of women).

Results

The median prospective fecundability (IQR) was 0.50 (0.17, 1.0) compared with a recalled fecundability (IQR) of 0.40 (0.17, 1.0). The geometric mean ratio between the recalled and the prospective measures of fecundability was 0.97 (IQR: 0.8, 1).

Lean or normal body mass index and responding to the Phase 3 questionnaire by telephone were associated with being less likely to recall accurately (Supplemental Digital Content 4, Table). Women with at least four pregnancies in their lifetime were less likely to be accurate compared with women who had 0 or 1 pregnancy, but this association was weakened in the multivariable model.

Associations were similar when the sample was limited to women who conceived recognized pregnancies during the EPS (see Table, Supplemental Digital Content 4).

Reference

1. Nguyen RH, Wilcox AJ. Terms in reproductive and perinatal epidemiology: I. Reproductive terms. J of Epidemiol Commun H 2005;59:916-9.

Supplemental Digital Content 3. Maternal and pregnancy-related characteristics associated with accurate reporting of TTP among women who did not drop out of the EPS (Total N=153).

	Accurate N=93 (61%) N (%)	Inaccurate N=60 (39%) N(%)	P-value from the multivariable model[a]
EPS attempt outcome[b]			
No recognized pregnancy	3 (100)	0	
Recognized miscarriage	11 (52)	10 (48)	
Live birth	79 (61)	50 (39)	
Prospective TTP			
1	32 (73)	12 (27)	0.002
2	15 (45)	18 (55)	
3 – 4	14 (42)	19 (58)	
5 – 7	11 (69)	5 (31)	
8 – 12	8 (62)	5 (38)	
≥13	13 (92)	1 (8)	
Age (at Phase 1 enrollment)			
< 29	43 (57)	33 (43)	
≥ 29	50 (65)	27 (36)	
Education (at Phase 1 enrollment)			
College graduate or less	61 (62)	37 (38)	
At least some graduate school	32 (58)	23 (42)	

Occupation (at Phase 1 enrollment)			
Sales/Service/Factory	6 (50)	6 (50)	
Other white collar	41 (68)	19 (32)	
Teaching	13 (57)	10 (43)	
Management/Administration	5 (63)	3 (38)	
Health professional	24 (62)	15 (38)	
Academia/Science	4 (36)	7 (64)	
Body mass index (at Phase 1 enrollment)			
< 20	31 (52)	29 (48)	0.03
20 – < 25	53 (64)	30 (36)	
≥ 25	9 (90)	1 (10)	
Gravidity (at Phase 1 enrollment)			
0	31 (55)	25 (45)	
1	37 (63)	22 (37)	
≥ 2	25 (66)	13 (34)	
Parity (at Phase 1 enrollment)			
0	41 (55)	34 (45)	
1	42 (67)	21 (333)	
≥ 2	10 (67)	5 (33)	
Characteristics measured during Phase 3			
Lifetime gravidity			
0 or 1	7 (78)	2 (22)	0.38

2	34 (63)	20 (37)	
3	26 (68)	12 (32)	
≥ 4	26 (50)	26 (50)	
Lifetime parity			
0 or 1	9 (60)	6 (40)	
2	51 (65)	27 (35)	
3	22 (61)	14 (39)	
≥ 4	11 (46)	13 (54)	
EPS participant is a grandmother			
Yes	18 (58)	13 (42)	
No	73 (61)	47 (39)	
Mode of Phase 3 response			
Mail	78 (64)	44 (36)	0.02
Phone	15 (48)	16 (52)	

[a] Multivariable model included variables that were important ($p \leq 0.2$) in the univariable analysis: prospective TTP, BMI, lifetime gravidity and mode of Phase 3 questionnaire response.

[b] Outcome of EPS attempt using all available information from all three Phases.

Supplemental Digital Content 4. Maternal and pregnancy-related characteristics associated with accurate reporting of TTP, among women who conceived a recognized pregnancy during EPS Phase 1 (Total N=119).

	Accurate N=66 (55%) N (%)	Inaccurate N=53 (45%) N (%)	P-value from the multivariable model[a]
EPS outcome			
Spontaneous abortion	7 (50)	7 (50)	
Live birth	59 (56)	46 (44)	
Prospective TTP			
1 cycle	32 (73)	12 (27)	0.02
2	15 (45)	18 (55)	
3	11 (50)	11 (50)	
≥ 4	8 (40)	12 (60)	
Age			
< 29	35 (59)	24 (41)	
≥ 29	31 (52)	29 (48)	
Education			
College graduate or less	40 (54)	34 (46)	
At least some graduate school	26 (58)	19 (42)	
Occupation			
Sales/Service/Factory	6 (60)	4 (40)	
Other white collar	27 (61)	17 (39)	
Teaching	10 (50)	10 (50)	
Management/Administration	4 (67)	2 (33)	
Health professional	16 (55)	13 (45)	
Academia/Science	3 (30)	7 (70)	
Body mass index			
< 20	24 (50)	24 (50)	0.15
20 - < 25	36 (56)	28 (44)	

≥ 25	6 (86)	1 (14)	
Gravidity			
0	21 (50)	21 (50)	
1	41 (59)	28 (41)	
≥ 2	4 (50)	4 (50)	
Parity			
0	28 (48)	30 (52)	
1	32 (64)	18 (36)	
≥ 2	6 (55)	5 (45)	
Characteristics measured during Phase 3			
Lifetime gravidity			
0 or 1	3 (60)	2 (40)	
2 or 3	41 (60)	27 (40)	
≥ 4	22 (48)	24 (52)	
Lifetime parity			
0 - 2	39 (58)	28 (42)	
3	16 (57)	12 (43)	
≥ 4	11 (46)	13 (54)	
EPS participant is a grandmother			
Yes	12 (48)	13 (52)	
No	52 (57)	40 (43)	
Mode of Phase 3 response			
Mail	57 (59)	39 (41)	0.05
Phone	9 (39)	14 (61)	

[a] Multivariable model included variables that were important ($p \leq 0.2$) in the univariable analysis: prospective TTP, BMI, and mode of Phase 3 questionnaire response.