SARA: Availability and Missing Data Statistics

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This document provides summary statistics on availability and missing data from the SARA micro-randomized trial and is divided into three sections.
Section 1: summary statistics on availability for each aim.
Section 2: summary statistics on missing intervention assignment for each aim.
Section 3: summary statistics on control covariates for each aim.

The *csv* files under the column "File Name" in the tables below each contain a list of participants and dates that were impacted by various issues/events leading to unavailability or missing intervention assignment. A brief description of these issues/events is given below:

Table 1: Summary of known issues affecting the outcome, intervention assignment, or control variables by aim

Issue No.	File Name	Aim 1 Impacted?	Aim 2 Impacted?	Aim 4 Impacted?	Issue/Event
0	issue_00.csv	Yes	Yes	Yes	Participant lost access to aquarium app but contacted study staff to regain access.
1	issue_01.csv	No	Yes	Yes	A bug affected the delivery of memes.
2	issue_02.csv	Yes	No	No	Participant did not receive any 4pm notification due to a scheduling error.
3	issue_03.csv	Yes	No	No	A bug caused 4PM notifications to fail to be sent within a set 2 second time limit.
4	issue_04.csv	Yes	No	No	No 4PM notification was sent on a given day because server was full.
5	issue_05.csv	Yes	No	No	App's initial registration with the server failed: after installing the app, the app is registered with external servers before data can be transferred between the app and the server. If the registration fails, it is re-attempted again until registration is successful.
6	issue_06.csv	Yes	No	No	Participant did not provide read access to aquarium app to mobile phone's SD card.
7	issue_07.csv	Yes	No	No	Participants did not have data collection app installed on their phone on certain days of the study.
8	issue_08.csv	Yes	No	No	Participant is assumed to not have charged their phone.
9	issue_09.csv	No	Yes	No	Participant closed main SARA app too soon after completing a survey, preventing randomization from occurring.
10	issue_10.csv	No	Yes	No	Randomization to Aim 2 intervention assignment very likely happened but did not get recorded for these participant days due to issues uploading randomization assignment from aquarium app to the cloud. Details: Randomization assignment from aquarium app can fail to be uploaded to the cloud when (1) internet connection is slow or (2) javascript is a single thread and has no background operations.
11	issue_11.csv	No	No	Yes	Data on randomization assignment on the phone did not sync to the cloud.
12	issue_12.csv	No	No	Yes	Unknown cause unrecorded missing randomization assignment.
13	noncompletion_aim2.csv	No	Yes	No	Survey was not completed on a given participant day.
14	noncompletion_aim4.csv	No	No	Yes	Active task was not completed on a given participant day.
15	-	Yes	Yes	Yes	On last day in study, survey completion or active task completion data in the aquarium app may not have been uploaded to the cloud.

1 Availability

Table 2: Total participant days not available

	Aim 1	Aim 2	Aim 4
No. participant days available	1888	879	740
No. participant days not available	66	521	560
Total participant days in data for analysis	1954	1400	1300

Table 3: Aim 1: Total participants and days not available for 4PM notification per issue/event within days 1-29

File Name	No. of Participants	No. of Participant Days
issue_00.csv	5	10
issue_02.csv	2	16
issue_03.csv	9	19
issue_04.csv	19	19
issue_05.csv	2	2
Total	37	66

Note:
0 participant days are impacted by more than one issue/event.
Hence, 66 - 0 = 66

Table 4: Aim 2: Total participants and days not available for meme/GIF per issue/event within days 1-28

File Name	No. of Participants	No. of Participant Days
issue_00.csv	4	9
noncompletion_aim2.csv	48	512
Total	52	521

Note:
0 participant days are impacted by more than one issue/event. Hence, 521
- 0 = 521

Table 5: Aim 4: Total participants and days not available for meme/GIF per issue/event within days 3-28

File Name	No. of Participants	No. of Participant Days
issue_00.csv	4	9
noncompletion_aim4.csv	48	551
Total	52	560

Note:
0 participant days are impacted by more than one issue/event. Hence, 560
- 0 = 560

2 Missing Intervention Assignment

Table 6: Total participant days having missing intervention assignment among available participant days

	Aim 1	Aim 2	Aim 4
No. available participant days having an intervention assignment	1780	858	703
No. available participant days having missing intervention assignment	108	21	37
Total	1888	879	740

Table 7: Aim 1: Total participants and days having missing intervention assignment among available participant days within days 1-29

File Name	No. of Participants	No. of Participant Days
issue_06.csv	2	55
issue_07.csv	3	52
issue_08.csv	1	1
Total	6	108

Note:
0 participant days are impacted by more than one issue/event.
Hence, 108 - 0 = 108

Table 8: Aim 2: Total participants and days having missing intervention assignment among available participant days within days 1-28

File Name	No. of Participants	No. of Participant Days
issue_09.csv	3	3
issue_10.csv	11	18
Total	14	21

Note:
0 participant days are impacted by more than one issue/event.
Hence, 21 - 0 = 21

Table 9: Aim 4: Total participants and days having missing intervention assignment among available participant days within days 3-28

File Name	No. of Participants	No. of Participant Days
issue_11.csv	22	32
issue_12.csv	1	5
Total	23	37

Note:
0 participant days are impacted by more than one issue/event.
Hence, 37 - 0 = 37

3 Control Covariates

Table 10: Total participant days with "YES", "NO", or "UNKNOWN"among available

	Aim 1	Aim 2	Aim 4
	No. Participant Days	No. Participant Days	No. Participant Days
isCompleted_yesterday_yes=1	1156	705	591
isCompleted_yesterday_no=1	723	170	149
isCompleted_yesterday_unknown=1	9	4	0
Total available participant days	1888	879	740

Table 11: Total participant days with "YES", "NO", or "UNKNOWN"among available

	Aim 1	Aim 2	Aim 4
	No. Participant Days	No. Participant Days	No. Participant Days
contact_yes=1	993	370	262
contact_no=1	877	497	478
contact_unknown=1	18	12	0
Total available participant days	1888	879	740

Table 12: Total participant days with "YES", "NO", or "UNKNOWN"among available

	Aim 1	Aim 2	Aim 4
	No. Participant Days	No. Participant Days	No. Participant Days
appusage_yes=1	1319	781	635
appusage_no=1	508	79	105
appusage_unknown=1	61	19	0
Total available participant days	1888	879	740