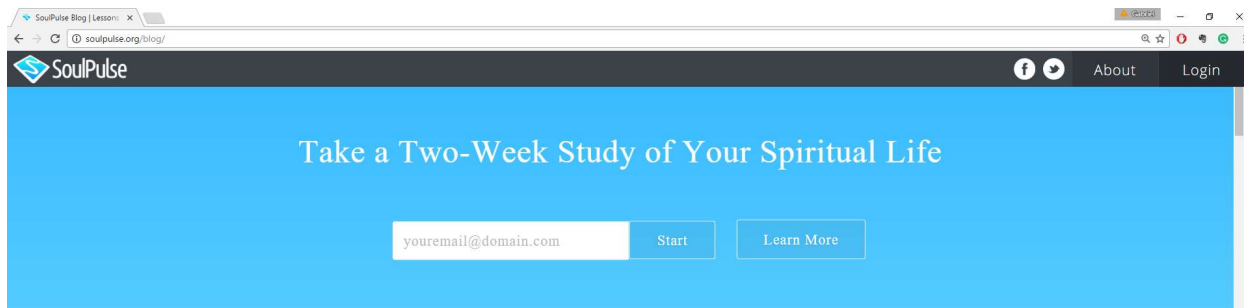


SoulPulse Report 2: Structure of the Data

The SoulPulse study has generated a very large data set—with about 1.5 points of data—and it has a unique structure that reflects how SoulPulse was created. To understand this structure, let's start with how SoulPulse collected data.

First, participants sign-up for SoulPulse at SoulPulse.org. When they sign up for it, they check off on an informed consent form, and they provide their smartphone number and e-mail address.

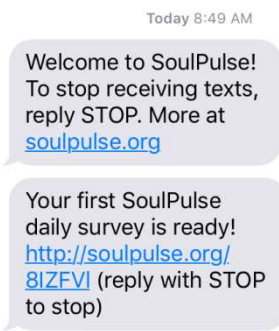


Second, while still on the SoulPulse.org site, they are given an intake survey. This is a one-time survey, and it contains about 80 questions regarding relatively stable aspects of their lives. The intake questions include a personality inventory, scales of self-control, social support, health measures, spiritual and religious measures, and demographic characteristics.

Third, right after the intake survey, the participants are sent their first daily survey. This takes the form of a text message sent directly to their smartphone. The first couple of surveys are relatively short, 10-15 questions, to get the participant used to taking them. Thereafter, the remaining surveys are longer at 20-30

questions. A total of 28 daily surveys are sent to participants over a two-week span. If they sign up in the morning, they get two surveys the first day and their study lasts fourteen days. If they sign up in the

afternoon or evening, they get one survey the first day and one the last day and their study lasts fifteen days. Participants receive the texts at random times during the period that they report being awake.



The daily questions are randomly drawn from a pool of about 120 questions. These questions regard social psychological states, situational characteristics, spiritual and religious experiences, and health ratings. Most of the questions regard the participants' states at the moment they received the text message; i.e., what were they doing, thinking, and feeling.

With which religious family, if any, do you most closely identify? (please select an answer)

In this survey, we use traditional religious language in referring to "God." However, if this does not fit with your belief system, please substitute another word that calls to mind the divine or holy for you.

Which statement comes closest to expressing what you believe about God?

- I don't believe in God
- I don't know if there is a God and there is no way to find out
- I believe in a Higher Power or cosmic force
- I sometimes believe in God
- I believe in God, but with some doubts
- I have no doubts that God exists

Do you regularly attend a small group for fellowship, prayer, or Bible Study?

- No
- Yes

In general, how important are religious or spiritual beliefs in your day-to-day life?

Not at all important Very important

Do you have a warm, personal relationship with God?

Not at all Very much

Some, though, refer to the recent past, such as events in the past several hours, since the last daily survey, or in the past 24 hours.

Importantly, not all questions are asked with the same frequency. A few questions are included in nearly all or all of the daily surveys. For example, the question asking participants if: “I am aware of God at this moment” was included in every survey for the first two years of the study. Some questions are asked occasionally. For example, asking participants if: “I have a clear sense of purpose at this moment” was included in about 20% of the surveys. Finally, some questions were asked only rarely. For example, “how sunny is it outside right now?” was asked only in 3% of the surveys. In general, we tried to increase the frequency of questions to match our substantive interest in them. Our aim was to create the most data about the most important questions while still collecting some data about less important, but still potentially interesting questions. Annotated codebooks are available in reports on SoulPulse.org.

Are you thinking about something other than what you're currently doing?

Not at all Very much

My health in general is

Poor

Fair

Good

Very good

Excellent

Finish

Many of the daily questions are answered using a slider bar. The left side of the bar is anchored with the words “not at all” and the right side is “very much.” The SoulPulse software, then, records answers in increments of 1 with a range of 1 to 100. Some of the questions, though, are answered by selecting one of a number of discrete answers. [Pic of slider]

Structure of the data

The data are stored in a data set that has 28 rows per participant, one row per daily survey. As of September 2016, the data set has about 85,000 rows of data (i.e., daily surveys) with about 230 columns wide (and each column stores data about a variable). Each row has the information from one daily survey plus all of the intake variables. Many of the cells are blank, of course, since not all questions are included in each survey.

The distribution of data for each participant informs which data from that participant can be used in any given analysis. Consider the hypothetical example in the figure below. Due to the randomizing algorithm employed by SoulPulse, this participant happened to be asked the variable “A” question on eight of their daily surveys and the variable “B” question on seven of their surveys. One survey, #5, contained both variables, so the data from this particular daily survey could be used in cross-sectional analysis. Two adjacent surveys—#5 & #6 and #13 & #14—measured “A” immediately prior to “B”, so these data could be used in lagged analysis that use “A” to predict “B” in the next survey. Three sets of survey—#6 & #7, #24 & #25, and #27 & #28—measure “B” immediately prior to “A”. These could be used in models using “B” to predict “A”.

Figure: Hypothetical Data Distribution for a Participant

Day of the Study	Survey Number	Variable A	Variable B
1	1		
1	2		
2	3		Y
2	4		
3	5	Y	Y
3	6		Y
4	7	Y	
4	8		
5	9		
5	10		
6	11		
6	12		
7	13	Y	
7	14		Y
8	15		
8	16	Y	
9	17	Y	
9	18		
10	19	Y	
10	20		
11	21		Y
11	22		
12	23		
12	24		Y
13	25	Y	
13	26		
14	27		Y
14	28	Y	