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### Data Article

# The infant's face diet: Data on 3-month-old infant-perspective experience with faces video-recorded in their typical, daily environment

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#### ABSTRACT

This dataset represents face experience coded frame-by-frame from nearly 170 hours of infant-perspective head-mounted-camera video, recorded during their daily life by 40 3-month-old infants. It includes information about the identity of the face (e.g., caregiver, relative), length of time the face was in the field of view, location in which the face occurred, and descriptions of the situation in which the infant experienced the face. Demographic information (e.g., age, gender) about the infants who recorded the videos is also provided. For elaboration on data collection methodology, interpretation, analysis, and discussion of early face experience captured by this dataset, please see our paper *These are the people in your neighbourhood: Consistency and persistence in infants' exposure to caregivers', relatives', and strangers' faces across contexts* [1].

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## 1. Data

The dataset presented here is a spreadsheet (FaceDataSpreadsheet) of early face experience coded from infant-perspective head-mounted camera video data captured by 3-month-old infants over the course of a typical week. The data identifies the individual faces experienced as well as

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## Specifications Table

Subject area	Psychology
More specific subject area	Face perception, first-person perspective, visual experience, infancy
Type of data	Spreadsheets of data coded from infant-perspective video-recordings
How data was acquired	Head-mounted infant-perspective video recorded by families during the course of infants' typical days (e.g., at home, out for walks)
Data format	Raw
Experimental factors	In this observational study, data were obtained by recording via head-mounted infant-perspective video cameras the early face experience of 40 typically developing 3-month-olds ( $\pm 14$ days) recruited via convenience sampling of families residing in the Greater Toronto Area, Canada. Video data were cleaned to exclude portions of recordings that did not represent the infant's perspective. All faces that were present and visible within the video were coded. For each face the infant experienced, the dataset provides a classification of identity (caregiver, infant themselves, relative, or stranger), gender, and location (e.g., at home, in a car) of the face.
Experimental features	Families were provided with head-mounted video-cameras with which to record the world from their infant's perspective for 1 week when the infant was 3 months of age. The cameras were placed on the infant's head when the infant was awake and alert, generating an average of ~4 hours of video per infant. Parents also described the people infants typically experienced before they began recording and, after recording, the people infants experienced during their week with the camera. This video was then coded frame-by-frame for faces.
Data source location	Toronto, Canada located at 43.6532° N and 79.3832° W
Data accessibility	Data is with this article
Related research article	Authors: Sugden, Nicole A., & Moulson, Margaret C. Title: These are the people in your neighbourhood: Consistency and persistence in infants' exposure to caregivers' relatives', and strangers' faces across contexts. Journal: <i>Vision Research</i> <a href="https://doi.org/10.1016/j.visres.2018.09.005">https://doi.org/10.1016/j.visres.2018.09.005</a>

**Value of the Data**

- This dataset provides a snapshot of infants' early experience with faces, which can be used to gain insight into important features of early visual input
- This data can be leveraged by developmental psychologists to develop and test theories about how infants learn from visual input by evaluating whether they receive posited early visual input
- This dataset could be used to develop research questions about the temporal dynamics of early visual experience
- For a developmental perspective, these infant data could be compared to child and/or adult face experience

classifying these faces as being the infant themselves (viewed in a reflection), a caregiver, a relative, or a stranger. It provides the location in which the recording occurred and a brief description of what was happening in each video recording session. A second spreadsheet (Face-DemographicsSpreadsheet) provides demographic information about the infants whose recordings are included in the FaceDataSpreadsheet (see also [1]). Fig. 1 provides an image of an infant wearing the head-mounted camera.

## 2. Experimental design, materials and methods

### 2.1. Materials

Parents were provided with two to four miniature inconspicuous cameras with which to record their infant's day from their infant's perspective. The camera was shaped as a yellow happy-face (see Fig. 1 [1]). The recording aperture of the camera was inconspicuously concealed in the black-coloured left eye of the happy face. The camera was light-weight and 5cm in diameter. The device was not readily identifiable as a camera and is sold as a 'spy camera'. It looked more like an infant clothing accessory than a camera. The camera was clipped onto a fuzzy elastic workout headband, which was



**Fig. 1.** Infant wearing the small head-mounted camera - the eye of the camera is in the eye of the smiley-face button above the bridge of the infant's nose.

worn on the infant's head. In a few cases, if the parent wished the infant to wear something else on their head (e.g., balaclava in the winter), parents clipped the camera onto a hat, hairband, or other head accessory.

To be able to best capture the infant's field of view the camera was placed at or slightly above the bridge of the infants' nose, between the infant's eyebrows. Small adhesive sponges purchased commercially from arts-and-crafts stores were placed on the back of the camera when necessary to adjust the camera angle to best capture the infant's field of view. When the infant wore the camera, it was oriented upside-down to ensure that the eye of the camera was as near as possible to the infant's eye. (Research assistants rotated the videos, using the built-in rotation function of Datavyu, so that the images were upright prior to viewing or coding the videos.)

The camera recorded at either 8 or 30 frames per second with an image resolution of 1536 X 2048 pixels. The battery life of the camera was approximately 1 h. With new cameras, the battery life was effectively 90 minutes, however battery life declined with use and longevity depended on the length of time during which it was recharged. Parents were asked to use the USB cable and wall adaptor we provided to charge the cameras overnight, ensuring the battery was full. Video was recorded in.AVI to a 16GB microSD memory card. The video includes audio and was in full colour. Parents were also provided a small bag in which to store the equipment, printed instructions for the camera, and a photograph of an infant wearing a properly placed camera as an exemplar for camera placement.

Parents were given a 'daily diary', which included a series of questions to be answered about each day they spent with the camera. The questions inquired about the number of times they recorded with the camera, the people the infant saw, the locations the infant visited, a brief description of the infant's activities, and any notes about the camera or recording. The daily diary also included reminders about privacy concerns related to recording. Parents were asked to complete the daily diary every evening.

## 2.2. Method

This data was collected replicating the design of Sugden's previous work [1–3]. Three-month-old infants were recruited from a database of families interested in participating in developmental research and through word-of-mouth. Participating families were visited at home. During the home visit, parents provided informed consent to participate. A researcher then administered a demographics questionnaire (e.g., infant age, gender) and trained the parent(s) in the operation of the camera.

Parents received 2–4 cameras (depending on availability) with 1–2 fuzzy headbands on which to mount the cameras. Cameras contained 16GB microSD memory cards, permitting up to 4 hours of recording per camera. Parents were also provided with USB charging cables and wall outlet adaptors, to be able to charge the batteries integrated in the camera. Parents were also provided with interest cards, to provide to people who had questions about the study, and daily diaries where they recorded details about their infant's day and recording activities. (Details from the daily diary are not included here, but are available upon request from the authors.) All items were packaged in a small case, for convenience of use.

The researcher who visited the home demonstrated the power and record buttons on the camera, recording a brief video. Parents were then asked to do the same thing, ensuring that they understood how to operate the camera. The USB charging cable was also demonstrated to the parents and the researcher requested that the cameras be charged overnight and/or after each recording session.

Parents were instructed to place the camera and headband on the infant's head so that the eye of the camera was centered between and in line with the infant's eyebrows. If the infant was available, the researcher then placed the camera on the infant's head to demonstrate correct placement. They then recorded briefly from the infant's perspective, placing their face within the infant's field of view. The researcher and parent then viewed the video, with the researcher highlighting the importance of correct camera placement. If the angle of the camera was not ideal, the camera angle was changed by adding or removing small adhesive pieces of foam to/from the back of the camera. This pivoted the camera up or down, accommodating differences in infant forehead angle. If this adjustment was necessary, the researcher would then repeat the process recording a second time from the infant's perspective. Although we had planned to continue this process until the camera angle was correct, no more than one adjustment was necessary for any infants. If the infant was not available, the researcher demonstrated on themselves or, if available in the home, a small infant-sized doll; in this case, no adjustments to camera angle were made.

Parents were instructed to record whenever their infant was awake and the parent felt it was an appropriate time to record. They were asked not to record in locations where there is a reasonable expectation of privacy, such as in a restroom, change-room, or medical office. They were also asked to inform people of recording if they entered a private residence. The researcher then checked to ensure that the parent understood the instructions surrounding privacy. Parents were encouraged to record as much as they could, with an ideal minimum of once per day. They were told that the goal behind providing multiple cameras was to allow the parent to record multiple times per day, without worrying about recharging the cameras during the day. Although the videos were coded for faces, parents were not asked to record only when faces were present.

Parents then scheduled a visit to the laboratory to return the camera, ideally 1 week after the home visit. During the week with the camera, parents were contacted twice to check that the cameras were working well, answer questions they may have had about recording, ensure compliance, and confirm their next visit. Although all cameras were checked prior to being provided to parents, some cameras ceased to operate during the week of recordings. Camera issues were due primarily to physical damage (e.g., dropped in the bath, eaten by a dog), loss (e.g., toddler-aged sibling misplacing the camera),

battery failure (e.g., being charged at a higher-than-recommended voltage with another charger), or filling the available space on the memory cards. If a camera ceased to operate, we scheduled a second home visit to provide one or more additional cameras. If the camera issue disrupted the week of recording such that there was minimal video recording, then the laboratory visit was rescheduled or (in one case) the parent was permitted to continue to use the camera for three days after the laboratory visit.

When parents visited the laboratory to return the camera, they provided oral consent to their ongoing participation. After this, parents answered a brief questionnaire about their infant's activities during the week, the people with whom the infant interacted, and their experiences with the camera. Parents described both when they did and when they did not record. Parents and infants were provided with a \$25 honorarium, a copy of all of the video that was recorded from their infant's perspective, and a small thank-you gift (e.g., giraffe bath toy).

The video was first viewed by a female research assistant to ensure that all video content was appropriate for coding. Inappropriate content could include nudity, abuse, or recording in areas in which the people being recorded had a reasonable expectation of privacy and were unlikely to have consented (e.g., restrooms). No videos were flagged for inappropriate content. Only female research assistants were permitted to code videos including breast-feeding or where the family requested only females view the video (e.g., due to religious regions – removal of head-coverings).

### 2.3. Video coding

All video coders were extensively trained in coding using Datavyu ([www.datavyu.org](http://www.datavyu.org)) freely-available data coding software. Training included co-coding with a senior coder followed by independently coding 3 training videos. Coders were required to reach 85% reliability to be permitted to code participant video.

Videos were then viewed in real-time by a coder dedicated to coding that family. The coder would first identify and document the primary location in the video and note what was occurring. They would also mark uncodable portions (e.g., when the camera was not on the infant's head, when the camera was occluded). They would then code the video frame-by-frame for faces that occurred within the field of view of the camera.

All faces in frame were coded. For example, if Mom and two Strangers were both visible from 10 to 20 seconds within the same video, the coder would code all three of these individual faces as occurring within the same frame. Thus, Mom, Stranger1, and Stranger2 would all be coded within this timeframe. For this reason, summing the total length of faces within a video can surpass the total video length (e.g., a summed total of 30 seconds of face experience for a video of 20 seconds). This was the measure used to comparing across face categories or types [2]; percent of time spent exposed to faces was calculated by subtracting the number of frames without faces from the number of total frames, dividing this by the number of total frames, and then multiplying the result by 100.

Each individual face was identified, where possible. To identify faces likely to be familiar to the infant, the assigned coder had at their disposal videos of the parent(s) and infant participating in the lab, questionnaires in which parents described the people with whom the infant interacted and activities in which the infant engaged, researchers who had met with and knew the family, and capacity to contact the parent themselves. They also used the audio in the video, wherein familiar people were often identified (e.g., called by name). When possible, the assigned coder would also have met the family. Any person who could be identified was. Any other person was identified as a stranger. Using these resources, the coder identified the onset and offset of each face experience for each individual. Individual faces retained their coding names from video to video, to ensure that they were consistent within each infant. The Stranger and Relative categories included multiple individuals across participant videos; multiple Stranger or Relative faces may appear in the same frame (e.g., Face1 and Face3 could both appear in the same frame). Face names across infants do not identify the same people.

The category of Stranger was intentionally broad. The research question for which this dataset was compiled was to ask how Caregivers' faces differed from those of other types of faces in the infant's environment. To provide the most stringent test, we contrasted caregivers with relatives, the infant's own face, and then other face types. Strangers were faces that did not belong to the infant themselves,

identified caregivers, or identified relatives (as detailed in Ref. [1]). Taking conservative approach to our research question, we included potentially known non-relative, non-caregiver individuals in the Stranger category even though this could result in face experience with Strangers being more like experience with known faces. We acknowledge that a different way of group the data could produce different insights about infants' face experience, although this was beyond the scope of the current research.

After the video was coded for faces, the assigned coder and a senior coder checked the data on Datavyu. This included randomly sampling to ensure face onset/offset accuracy, accurate identification within individuals (e.g., faces identified as mom's face always belonged to mom) and across individuals (e.g., mom was never identified as aunt), and other errors. The data was then extracted, using Datavyu's built-in data export option, from the individual videos. The CSV files generated were then concatenated into the first tab of FaceDataSpreadsheet.xls so that it includes all participants, all videos, and all coded fields. The legends for each field are provided in the second tab of the FaceDataSpreadsheet.

#### 2.4. Data entry

All demographic details were entered into an excel document, FaceDataDemographics.xls. This document includes the participant number assigned to each infant, demographic details about that infant (e.g., infant age, infant gender), and brief details about the recording (e.g., number of days recorded, total video recorded). It also provides parent-reported details about caregivers present in the infant's environment (e.g., who is the primary caregiver). Legends for each field are included in the second tab (named Legend).

The participant numbers in the FaceDataDemographics spreadsheet are consistent with the participant numbers indicated in the FaceDataSpreadsheet. The FaceDataSpreadsheet includes durations for each experience of a face that occurred in the video recordings. The spreadsheet indicates the participant number and video number for each instance of a face. These faces are identified by individually-assigned names, representing individuals. The face naming is consistent within participants but not between participants (e.g., 'mom' is not the same person for participant 378 and participant 325). In addition, faces are classified as being the primary caregiver, another caregiver, the infant themselves, a relative, or a stranger. Face classification is based on parent-report and video content (e.g., someone introduces a person as 'grandma'). As with the FaceDataDemographics, the second tab of the spreadsheet provides a legend that describes each column in the FaceDataSpreadsheet.

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#### Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.dib.2019.105070>.

#### References

- [1] N.A. Sugden, M.C. Moulson, These are the people in your neighbourhood: Consistency and persistence in infants' exposure to caregivers', relatives', and strangers' faces across contexts, *Vis. Res.* 157 (2019) 230–241, <https://doi.org/10.1016/j.visres.2018.09.005>.

- [2] N.A. Sugden, M.C. Moulson, Hey baby, what's "up"? One- and 3-month-olds experience faces primarily upright but non-upright faces offer the best views, *Q. J. Exp. Psychol.* 70 (5) (2017) 959–969, <https://doi.org/10.1080/17470218.2016.1154581>.
- [3] N.A. Sugden, M.I. Mohamed-Ali, M.C. Moulson, I spy with my little eye: typical, daily exposure to faces documented from a first-person infant perspective, *Dev. Psychobiol.* 56 (2) (2014) 249–261, <https://doi.org/10.1002/dev.21183>.