

Innovative strategies for increasing sample size and diversity in family science research

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Abstract

To build a robust, replicable, and generalizable family science we must ensure that our research includes samples that are large enough that we can test effects reliably and are diverse enough to speak broadly to families' experiences. This can be challenging for family science researchers who focus on family processes because many of the features of high-quality family process research make the experience quite onerous for participants; often multiple family members must participate, and data is typically collected through intensive methods, such as video observation or daily diaries. These methodologies allow us to capture rich and detailed data about family processes, but can make it difficult to achieve a large and diverse sample. Fortunately, there are a number of promising methods already in use in family science, or currently being deployed in other related fields, that offer good prospects for family science researchers seeking to improve the samples used in their research by increasing sample size and/or diversity. This article highlights innovative methods that will be useful in overcoming some of the sampling challenges facing family science researchers, focusing on creative ways to use existing datasets, including secondary data analysis and integrative data analysis, and methods that can be deployed when collecting new data, including accessing alternative data sources such as digital trace data, collecting observational data remotely, methods for reaching underrepresented groups, and big-team science.

KEYWORDS

couples, diversity, families, research methodology

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INTRODUCTION

Family science researchers aim to conduct studies that shed light on the processes and experiences that lead to happy and healthy family relationships. To do so we need to ensure that our research is robust, replicable, and generalizable, but this can be challenging for a number of reasons. We must obtain samples that are large enough for our statistical tests to be sufficiently powered to reliably estimate effects, and we must ensure that our samples are diverse enough to speak broadly to families' experiences. Although some areas of family science, such as family demography, are accustomed to using very large samples that are carefully weighted for representativeness, family science researchers who focus on day-to-day family processes may have more of a challenge in obtaining large and diverse samples. Many of the features of family process research make the experience quite onerous for participants; typically multiple family members are involved, and data is often collected through intensive methods, such as video observation or daily diaries. These methodologies allow us to capture rich and detailed data about family processes, but can make it difficult to achieve a large and diverse sample.

Indeed, there is reason for concern about the samples currently being used in family science research. First, there is suggestive evidence that sample sizes used in family science may be inadequate. An examination of articles published in 121 psychology and behavioral science journals estimated the replicability of the results published in each journal, based on an analysis of the sample sizes and test statistics in each article. Journals that publish family science research, including *Journal of Family Psychology*, *Journal of Child and Family Studies*, *Journal of Social and Personal Relationships*, and *Personal Relationships* had predicted replicability rates ranging from 42% to 68% (Schimmack, 2022a, 2022b). Additionally, many of the core features of quantitative family science research, such as the use of repeated measures, examination of complex processes through statistical interactions, and interdependent data from multiple family members actually suppress statistical power, thus requiring larger sample sizes (Kenny et al., 2006; Simonsohn, 2014). Unfortunately, many researchers underestimate the sample size needed for an adequately powered study (Bakker et al., 2016), and under-powered samples result in reduced likelihood of detecting a true effect (particularly if the true effect size is small) and reduced likelihood that a statistically significant result reflects a true effect (Button et al., 2013).

Additionally, family science is not immune from the focus on homogenous and non-representative samples that has plagued other areas of social science (e.g., WEIRD samples; Henrich et al., 2010). Multiple recent systematic review papers have highlighted a major lack of diversity in the samples used in family and relationship science. For example, a review of studies focusing on family systems found that the majority of samples were comprised of White families from Western countries, and >3% of all studies focused on LGBTQ families (Perez-Brena et al., 2022). Similarly, a review of studies focusing on intimate relationships found that the samples used in these studies are largely composed of individuals and couples who are in their 20s and 30s, White, American, middle-class, college educated, and involved in a different-sex, same-race relationship (Williamson et al., 2022). Reviews of the couple and family intervention literature have come to similar conclusions about underrepresentation of diverse families in treatment studies (Dwanyen et al., 2022; Tseng et al., 2021).

The widespread use of samples that are not diverse or inclusive means that the Standard North American Family (SNAF), which is characterized as a White, married, opposite-sex couple raising their biological children, has become the "norm" against which all other families are compared (Leticq, 2019). Continuing to privilege SNAF samples perpetuates inequality in family science and means that our knowledge of family processes is not generalizable and not reflective of the majority of the world population.

Family science must attend to these concerns and criticisms about sample size (i.e., statistical power) and composition in order to ensure the validity of our science. Thus, this article is aimed at quantitative family science researchers who are accustomed to collecting their own data to

capture family processes, with the purpose of highlighting innovative methods that will be useful in overcoming some of the sampling challenges facing these researchers. Of course, improving the size and composition of samples used in quantitative research is not the only step necessary toward advancing family science. High-quality qualitative research is also an important aspect of the research eco-system, particularly when it comes to gaining novel insights into traditionally underrepresented groups (Syed et al., 2018). However, qualitative research has its own unique considerations for determining sample size and composition, and thus, a complete treatment of qualitative sampling is beyond the scope of this manuscript.

As the demand within quantitative research for larger and more diverse samples continues, researchers who have fewer resources, such as early career researchers, researchers at primarily undergraduate institutions, and researchers in the Global South, will be disproportionately impacted. Fortunately, there are a number of promising methods already in use in family science, or currently being deployed in other related fields, that offer good prospects for family science researchers seeking to improve the samples used in their research by increasing sample size and/or diversity (see Table 1). Thus, the first section focuses on creative uses of existing data, which is low-cost and accessible. The second section focuses on new data collection, and discusses strategies that can be used to reach larger and more diverse samples.

CREATIVE USE OF EXISTING DATA

Family science researchers have a wealth of existing data at their disposal, and conducting new analyses on these data is an important tool for advancing family science. Using existing data respects the time of the participants who volunteered for the research by gaining as many insights as possible from their data, ensures that the money used to support the research (often provided by federal grants funded by taxpayers) is used to its full advantage, and allows a lower barrier to entry for new investigators with fewer resources.

Secondary analysis of publicly accessible datasets

There is a long tradition of utilizing large publicly available datasets in some areas of family science research, with datasets such as the Future of Families and Child Wellbeing Study (FFCWS), National Longitudinal Study of Youth (NLSY), National Survey of Family Growth (NSFG), Panel Study of Income Dynamics (PSID), Panel Analysis of Intimate Relationships and Family Dynamics (pairfam), and the National Longitudinal Study of Adolescent to Adult Health (Add Health) and the associated Add Health Parent Study, forming the basis for thousands of publications. These types of datasets are characterized by large sample sizes (ranging from ~1000 to 100,000 respondents), and strong representation of respondents from diverse backgrounds, which makes utilizing existing data one of the best ways for researchers to access large, diverse samples. Although secondary data analysis is a common and basic technique for many family science researchers, there are others who are accustomed to collecting their own data and do not have experience with secondary data analysis. Fortunately many useful guides already exist which can be consulted by researchers who are new to this method (e.g., Hofferth, 2005; Trzesniewski et al., 2011).

Instead, we highlight a more recent innovation in secondary data analysis which capitalizes on the availability of publicly accessible data from large-scale experimental studies of couple and family interventions to study causal impacts of family processes. These intervention studies, such as Supporting Healthy Marriages (SHM; Hsueh & Knox, 2014), Building Strong Families (BSF; Hershey et al., 2014), and Parents and Children Together (PACT; McConnell & Dion, 2020a, 2020b), were designed to test prevention programs intended to improve family

TABLE 1 Overview of methods for increasing sample size and/or diversity.

Method	Increase sample size?	Increase sample diversity?	Pros	Cons	Key resources
<i>Existing data</i>					
Secondary analysis of publicly accessible datasets	Yes	Yes	Low-cost; Sample are typically very large and diverse or nationally representative; Often longitudinal, with some spanning multiple decades; Dataset is typically well-documented	Measures of family processes are often limited (i.e., single-item measures or construct absent altogether)	Hoffrth (2005)
Finding data through a data repository	Potentially	Potentially	Low-cost; Can be an avenue for new collaborations	Limited by what exists in the repository; TLC database focuses mainly on couples, Databrary focuses mainly on child development	https://dataverse.unc.edu/dataverse/love ; https://nyu.databrary.org/
Integrative data analysis	Yes	Potentially	Low-cost; Can construct a large sample; More robust measures of family processes than in large omnibus datasets	Limited to the demographics of the existing samples, which are often not diverse; Can be challenging to integrate the data across studies	Curran & Hussong (2009)
<i>New data collection</i>					
Remote collection of observational data	Yes	Yes	Can reach participants who are not willing or able to participate in person at a university campus; Potential for more naturalistic behavior because participants are in their homes	Requires participants to own technology, such as a smartphone/computer with webcam and have high-speed internet access	Perry et al. (2021); McNulty et al. (2023)
Digital trace data	Yes	Potentially	Quick access to a large corpus of text-based data	May require ownership of specific technology (e.g., iPhone)	Brinberg et al. (2021); Seraj et al. (2021)
Vital records	Yes	Yes	Defined sampling frame which reduces sampling bias; Allows for targeted sampling of specific groups	Expensive; Potential for bureaucratic red tape when trying to access records	Elliott et al. (2013); Garcia & Umberson (2019)

TABLE 1 (Continued)

Method	Increase sample size?	Increase sample diversity?	Pros	Cons	Key resources
Community-based participatory research	No	Yes	Can reach groups that have been underrepresented in past research; Ensures that research is beneficial to the population being studied	Typically takes a long time and requires more effort than non-CBPR approaches	Parra-Cardona et al. (2020)
Big-team science	Yes	Yes	Collection of very large and diverse datasets with a small investment from many researchers; Ability to examine cultural influences on phenomena	Challenges with cross-cultural and cross-linguistic measurement; Potential for scientific colonialism	Forscher et al. (2023); Visser et al. (2022); Moshontz et al. (2018)

processes such as couple communication, co-parenting, and father involvement. These studies all targeted low-income families, many of whom were also racial and ethnic minorities, which means that they are an outstanding source of data on diverse and underrepresented families, and multiple of them even include observational data of couple, parent–child, and family interactions. These datasets have been made available to researchers in the ICPSR data repository, and there are a number of secondary research questions that these data are uniquely poised to answer. Most obviously, the datasets can be used to further examine mechanisms of the intervention, such as mediators and moderators of treatment effects (e.g., Knopp et al., 2022). Researchers have also conducted analyses with only control group participants, and treated their data as essentially an observational study (e.g., Ross et al., 2019).

However, the primary innovation in these intervention data is that it opens up the opportunity for researchers to leverage the experimental manipulation to test theorized causal pathways between constructs. For example, there has long been correlational research demonstrating that fathers' engagement with their children is associated with the quality of the fathers' relationship with their child's mother (Carlson et al., 2011). Longitudinal research has even provided preliminary support for the idea that the association between couple relationship quality and fathering behavior is directional: Father involvement drops sharply after the relationship between the parents ends (Tach et al., 2010) and couple relationship quality predicts future parental engagement for mothers and fathers, but parental engagement does not predict future couple relationship quality (Carlson et al., 2011). However, as with most research on family processes, this existing evidence was correlational, leaving open the question of whether the link between couple relationship functioning and father engagement is causal.

The SHM study offered the unique opportunity to test this potential causal connection between couple relationship functioning and fathering because it delivered a relationship education program that improved couple relationship functioning to a very large sample of couples ($N = 6298$) and measured fathers' parenting behaviors at a 30-month follow-up. Secondary analyses of the SHM data found that the intervention did not have direct effects on fathering outcomes, but there were small, significant positive indirect effects on multiple dimensions of fathering (involvement, warmth, responsiveness, and monitoring) through intervention-induced improvements in couple relationship functioning, thus supporting a causal link between couple relationship functioning and fathering behavior (Williamson et al., 2023).

It is notoriously difficult to study causality in family processes, which means that much of the existing literature is correlational/observational in nature. These types of interventions are essentially an experimental manipulation of family processes, which provides the rare opportunity to push forward family science by testing theorized causal associations between family processes and various outcomes.

Data repositories

One pitfall of the large omnibus datasets that are available for secondary data analysis is that they do not always contain detailed measures of family processes. When no publicly available datasets are appropriate to address the research question, an alternative option is to use data collected by another researcher. Large publicly available datasets have long maintained a well-developed infrastructure for accessing the data, completing any necessary data use agreements, and learning about the structure of the data. However, the ability to find and access datasets collected by individual researchers has lagged behind, and often relies on researchers' personal networks, which is an inequitable solution.

The Love Consortium (TLC; <https://www.theloveconsortium.org>), was established to address this need by facilitating collaborative opportunities that emerge from archived data. TLC hosts a dataverse which allows researchers to publicly list their datasets, describe them

through uploaded metadata and codebooks, and indicate their willingness to share the data with other researchers or allow other researchers to collaborate with them. This is a promising platform for enabling researchers to find a single dataset to use, as well to facilitate integrative data analysis (discussed below) by allowing researchers to search for multiple datasets that contain their constructs of interest. Currently there are >90 datasets listed on the TLC dataverse which can be searched for specific keywords and sorted on multiple dimensions, such as the population unit (e.g., individuals, dyads, triads), the focal relationship type (e.g., romantic, family, friends), and the methodology (e.g., surveys, behavioral tasks, experiments).

Despite its promise for providing a low-cost way for researchers who study family relationships to access new datasets, this platform does have drawbacks. In particular, the TLC dataverse does not require researchers to directly archive their data files. When raw data isn't posted, each researcher must receive and vet each data sharing request, prepare the data, and execute any desired data use agreements on their own. Moreover, the existing corpus of datasets skews heavily toward studies of couple relationships from a social psychology perspective. However, the TLC dataverse is open to data on any aspect of love and social connection, such as parent-child, grandparent-grandchild, and sibling relationships. Thus, this data repository will become more broadly useful for family science researchers if researchers from other disciplines and research foci utilize it to share their data.

Integrative data analysis

A major drawback of re-analyzing existing data is that the sample size and composition are already established, which means that problems with small and homogenous samples will be perpetuated. A solution to this problem is to pool raw data from studies collected by multiple researchers using a process called integrative data analysis (IDA; Curran & Hussong, 2009; Hussong et al., 2013). This approach allows researchers to create a much larger dataset than any individual researcher could collect, which permits statistical analyses that would be underpowered or impossible with a smaller dataset.

An example of the type of question that was possible to address through integrative data analysis is McNulty et al. (2021) test of the Vulnerability-Stress-Adaptation (VSA) model of change in relationship satisfaction (Karney & Bradbury, 1995). Despite the importance of this theory to the field of relationship science—the paper proposing the theory has been cited more than 4000 times—the full theoretical model had never been tested in one integrative study. The researchers pooled data from 10 longitudinal studies of married couples to derive a sample of 1104 couples (2208 individuals), which provided the power needed to simultaneously test all of the mediating and moderating pathways in the full model. All 10 studies included both spouses' baseline self-reports of enduring vulnerabilities, baseline observational measures of behavioral exchanges between spouses coded with the same coding system, and longitudinal data spanning 2–4 years, involving 5–10 waves of data, with repeated measures of external stress and relationship satisfaction.

The researchers found support for most of the hypothesized pathways in the VSA model, but also documented one important difference: the original VSA model posited that couples' behavioral processes would be directly linked with marital satisfaction, but in the integrative analysis, couples' observed behavior did not have a main effect on changes in marital satisfaction. Instead, the way behavior predicted satisfaction depended on concurrent levels of stress, which led the researchers to suggest a revision to the VSA model that acknowledges the role of stress in moderating the link between behavior and satisfaction. This Revised VSA model, which was made possible through integrative data analysis, helps to reconcile prior inconsistencies in research on relationships and opens up a number of new empirical questions about the process through which intimate relationships change over time.

Researchers interested in using IDA to create a larger and more diverse sample to test their research question should be aware that although IDA saves a great deal of time and money by using existing data, it also introduces statistical and data cleaning challenges. The best-case scenario for IDA involves integrating datasets that used the same measures for the constructs of interest, which makes pooling the data a fairly straightforward task. If the constructs were measured with different scales or items then integration becomes more difficult and often requires the use of analytic techniques such as confirmatory factor analysis or item response theory to identify the shared underlying construct measured by the different items (Curran et al., 2008; Hussong et al., 2021). Beyond this general word of caution about the potential challenges of IDA, it is not possible within this space to fully explicate the process because the specific techniques and analyses used in IDA will depend on the datasets and research questions. To learn more about this method, researchers should consult one of the many useful and comprehensive guides (e.g., Bainter & Curran, 2015; Curran & Hussong, 2009; Hussong et al., 2013).

While the use of IDA to create a large, well-powered dataset by combining multiple full samples has already begun to gain traction in studies of romantic relationships in recent years (e.g., Jolink et al., 2022), there is an additional use for IDA that has not yet been well-exploited in family research. Rather than combining multiple full samples, IDA techniques can be used to derive a sufficiently powered sample of participants from a specific underrepresented group. Many studies contain only a small number of participants from minority groups, such as LGBT couples, or ethnic/racial minority families (Perez-Brena et al., 2022; Williamson et al., 2022), which means that processes of unique importance to these groups are often overlooked. Researchers interested in focusing on an underrepresented group could identify the small number of participants from this group within each dataset and combine them into a sample that is sufficiently sized to analyze on its own.

Froidevaux et al. (2022) took this approach to generate a sample of inter-racial dating couples by accessing 20 datasets ($N = 2269$ couples) from The Love Consortium dataverse and coding dyads based on both partners' racial identities to identify 319 inter-racial couples who form the new sample. This work is still ongoing, but this creative approach allows for a focus on groups that would be overlooked within their larger datasets, allowing them to become the focus of the research.

STRATEGIES WHEN COLLECTING NEW DATA

Despite the benefits of using existing data, there are many occasions when new data are necessary or desirable to address the research questions. A number of methodological innovations can help family science researchers who are undertaking new data collection to increase their sample size and/or reach underrepresented groups.

Remote collection of video-recorded observational data

Video-recorded observational data have long been the gold standard for research on family processes, and the longstanding method for collecting this data involves participants coming to a university campus and sitting in an observational lab outfitted with multiple video cameras and microphones (Bulling et al., 2023). This method means that people who do not live within close proximity of a research-intensive university (such as rural Americans) or people who do not feel comfortable navigating a large university campus (such as people who did not attend college) are often excluded from family science research. In recognition of the exclusionary nature of this paradigm, some researchers, particularly those interested in recruiting underrepresented participants, have flipped the paradigm, with researchers visiting participants in their homes

with portable video equipment (e.g., Nguyen et al., 2020). Recent technological advances have now gone even further, making it possible for participants to provide observational data from their homes without the need to interact in-person with researchers.

One way to remotely collect observational data is to conduct a virtual data collection session, in which the researchers and participants interact through a video-conferencing platform. Perry et al. (2021) used this approach with two studies focused on sexual and gender minority (SGM) couples. SGM couples make up a small proportion of the population (1.5% of coupled households in the U.S.; Walker & Taylor, 2021) and can therefore be difficult to reach, particularly for researchers situated at universities that are not in major urban centers. Participants ($N = 60$ couples in Study 1 and $N = 82$ couples in Study 2) were recruited through online advertisements as well as flyers posted locally in the university communities, and invited to complete an online screener. Eligible couples then attended a virtual data collection session with a member of the research staff in which they completed 3 to 4 video-recorded discussion tasks through the Adobe Connect video-conferencing platform. The researcher gave participants instructions, then muted their microphone, turned off their video, and stepped away from their computer for the duration of the conversation to give participants privacy.

The vast majority of the recordings had adequate audio/video quality to be behaviorally coded with commonly used coding systems. Overall, reliability was high and rates of behaviors such as demand/withdraw and positive behavior were within a similar range as other studies of observed communication among SGM couples. Importantly, the researchers were able to reach a more racially and ethnically diverse sample of SGM couples that more closely approximated the population of same-sex couples in the U.S. compared to similar lab-based studies.

Another option for remote collection of observational data is for participants to independently record themselves and submit the videos to the researchers, a procedure developed and tested by McNulty et al. (2023) during the early months of the COVID-19 pandemic, when in-person data collection was unavailable. They recruited participants from an online research platform and invited them to submit a home-made video of a problem-solving discussion conducted with their partner. Participants were given instructions about how to choose the topic to discuss and how to position themselves in the video and minimize background noise. After recording the video, participants uploaded it to a secure server using a link provided by the researchers. Nearly all of the submitted videos provided code-able data and when videos were coded with a commonly used coding system reliability was high, base rates of behavior were similar to those obtained in lab-based videos, and only a small percentage of speaking turns were off-task, indicating that participants took the task seriously and the videos were comparable to those obtained in lab-based research.

Overall, remote collection of observational data opens up the possibility for researchers to obtain larger and more diverse samples than they could with existing observational protocols, but they are not yet a panacea. The procedures require ownership of technology and internet access, which could still exclude many underrepresented groups. For example, 85% of Americans have a broadband internet subscription, but internet access is higher among households with higher income and educational attainment and lower among householders who are older, disabled, have limited English proficiency, are Black, and live in a rural area (US Census Bureau, 2021). Thus, researchers may need to offer a variety of data collection modalities, such as home visits and virtual data collection sessions, to be fully inclusive.

Digital trace data

Situated in the gray area between existing data and new data are digital artifacts of relationships, such as text messages exchanged between partners, that already exist but must be accessed by researchers. Luckily, advancing technology has made these rich data increasingly available to family science researchers.

Computer mediated communication (Yao & Ling, 2020) is a form of digital trace data that can give insight into the communication and interaction between family members. One way these data can be accessed by researchers is through mobile data donation (Ohme et al., 2021), in which participants copy the text message record from their phone and give it to researchers. Brinberg and colleagues used this method to study communication behaviors during relationship development among college-age romantic couples (Brinberg et al., 2021; Brinberg & Ram, 2021). They recruited dating couples who had exchanged their first text messages within approximately the past year and obtained the couples' texting history, resulting in a corpus of more than 1 million text messages exchanged between the partners across 41 couples. The participants had "been a couple" for 23 weeks on average, but had known each other for 57 weeks on average, which allowed the researchers to examine how their communication changed as the romantic relationship formalized. They found that daily texting frequency showed systematic curvilinear growth and decline, and three aspects of daily linguistic alignment (language style matching, similarity in the semantic content, and overall alignment) all exhibited exponential growth to an asymptote during the relationship formation transition.

In general, text message data allow measurement of communication features such as frequency of interaction, how responsive people are to each other's messages, and message length, as well as the content of the messages, all of which could be informative for understanding change over time in many types of relationships beyond romantic relationships, such as parent-adolescent dyads.

Other forms of digital trace data that are available on smartphones could also be leveraged to address questions about interactions between family members. For example, GPS location data that is routinely and automatically collected by smartphones can be used to determine when two (or more) individuals spend time together in the same location (Harari et al., 2017). Overall, digital trace data is powerful for capturing behavior over a long period of time. The ability to capture objective longitudinal measurements of behavior with only a single research session should allow sample sizes to be much larger than could be obtained if participants were required to stay actively involved in data collection over the same time period. However, a current major limitation of this method is that it requires participants to own technology, such as a smartphone, which limits who is able to participate in the research, and therefore the generalizability of the results.

Another way to acquire digital trace data is by scraping postings from publicly accessible websites such as message boards (e.g., Reddit) or social media sites (e.g., Twitter). Seraj et al. (2021) used this method to examine people's social, cognitive, and emotional lives as they dealt with the breakup of a close intimate relationship. Capitalizing on a large number of Reddit users who had posted about their breakups ($N = 6803$) and divorces ($N = 5144$), the researchers scraped posts from these users for the 2 years surrounding the event, resulting in a corpus of over 2 million posts. They found that language markers of an impending breakup were evident 3 months before the event, peaked on the week of the breakup, and returned to baseline 6 months later. The linguistic changes were observed even when people were posting to message boards unrelated to breakups and other relationship topics, demonstrating the pervasive impact of breakups across other areas of people's lives.

Both of the above studies conducted language analysis via the Linguistic Inquiry and Word Count software (LIWC; Boyd et al., 2022), which is a fairly traditional method of analyzing written content by counting words that fall within specific content categories. However, major strides in machine learning and artificial intelligence techniques for natural language processing (NLP) have arisen in the past few years which allow for more nuanced extraction of meaning and sentiment from written text (Chowdhary, 2020). As computer scientists continue to develop these techniques and build methods for applying them that are accessible to social scientists, NLP will make data derived from computer-mediated and text-based communication even more valuable for yielding insights into family processes.

However, a major limitation of data obtained through webscraping is the lack of information about participant demographics. Proponents of the use of Big Data in behavioral science argue that “The high participation rate in digital platforms allows for the collection of diverse samples and gives researchers access to demographics that have been traditionally underrepresented in psychological research” (Peters et al., 2022, p. 90), but the true utility of this type of data and methodology for improving diversity (and not just sample size) is yet unknown.

Recruiting participants from underrepresented groups

When undertaking new data collection, many family science researchers may need to update their recruitment techniques to ensure that their samples include diverse and underrepresented populations. Limited financial resources often mean that most of the budget is allocated toward paying participants to spend their time engaging in intensive data collection procedures, with the hope that payment for participation will be incentive enough to entice families to join the study. Thus, little attention and money are allocated toward the recruitment process itself and techniques that require few resources, such as posting flyers or advertising on social media, are commonly relied upon. Unfortunately, passive recruitment techniques tend to result in convenience samples that are overwhelmingly White, well-educated, and affluent.

To reach participants who have historically been underrepresented in the literature, such as racially minoritized families, immigrant families, families living in low-income contexts, and sexual and gender minority families, active recruitment techniques must be used. Rather than sitting back and waiting for participants to contact us and volunteer for our studies, members of the population of interest can be identified through methods such as vital records or community insiders, and approached in a tailored and culturally appropriate manner.

One useful approach for researchers seeking to reach specific underrepresented groups is to identify them directly with the assistance of vital records. For example, Karney and colleagues have used marriage licenses obtained from county register offices in multiple large U.S. cities to identify newlywed couples living in low-income neighborhoods by matching the addresses provided on the marriage licenses to census data about the socioeconomic context of the neighborhood. They also wanted to reach specific racial/ethnic groups but the marriage licenses only contained names and addresses, so they developed a Bayesian method for imputing self-reported race/ethnicity from this information, which resulted in a much more efficient sampling process (Elliott et al., 2013). After identifying couples who fit the inclusion criteria, they were contacted and invited to participate in the study, yielding a sample of 431 couples in Los Angeles and 231 couples in Houston (e.g., Lavner et al., 2020; Williamson et al., 2021).

Garcia & Umberson (2019) used a similar approach to recruit a sample of 106 male same-sex couples, 157 female same-sex couples, and 115 different-sex couples for a daily diary study of couples and health in midlife. They used Massachusetts vital records to identify gay and lesbian couples who met age requirements and had married between 2004 and 2012 and mailed them a letter to invite them to participate. Massachusetts was chosen because it was the first U.S. state to legalize same-sex marriage and would therefore allow for recruitment of a significant number of legally married, midlife gay and lesbian couples, which was the focus of the study. Different-sex couples were identified through publicly available Massachusetts city lists that provided addresses and demographic information on household members. Couples from zip codes corresponding to neighborhoods with significant numbers of gay and lesbian study participants were mailed letters inviting them to participate in the study. The sample is similar to nationally representative data from midlife same- and different-sex couples on age, income, and percent of couples with children in the household. As these studies demonstrate, the benefit of using vital records is that it provides a defined sampling frame from which all families who meet the inclusion criteria will be approached for inclusion in the study.

An alternative to identifying and reaching out to potential participants as an outsider is to involve community insiders in the research process, using community-based participatory research (CBPR) techniques. CBPR is not a specific set of methods, but is instead an approach to research that equitably involves community members, organizations, and researchers in all aspects of the research process with the goal of conducting research that will benefit the community. Thus, researchers seeking to conduct research using a CBPR framework will need to determine the methods that are best suited to their population of interest by consulting the CBPR literature, including a number of recent articles focused on CBPR in family science (e.g., Berge et al., 2009; Henderson et al., 2017; Parra-Cardona et al., 2020).

One example of a successful program of family science research that has used CBPR techniques is a series of studies focused on rural African American families conducted by the Center for Family Research (CFR) at the University of Georgia. The CFR has been successful at recruiting and retaining these participants in their research by partnering closely with community stakeholders in the design and implementation of their interventions and studies. In particular, they work with a group of community liaisons (selected for their positive reputations and extensive social contacts in their communities) who are residents of the counties in which the study families live, and act as contacts between the research group and the communities. The liaisons attend three training sessions each year, at which procedures for recruiting, tracking, and engaging families are reviewed. The liaisons work with the recruitment coordinator to enroll families, then remain in contact with participating families and track the addresses and phone numbers of families who move. The liaisons make suggestions for improving the recruitment and retention protocols and they are given updates about research findings (Murry & Brody, 2004).

Regardless of the specific research methodology being used, researchers seeking to study members of underrepresented and marginalized groups must do so in a manner that is respectful of, and relevant to, these communities (Hall et al., 2016). In addition to partnering with community members, researchers should also seek to diversify the scholars who make up their research groups (Nzinga et al., 2018; Roberts et al., 2020). However, in doing so we must be careful to avoid “instrumental diversity” on the research team, in which underrepresented individuals are only hired into frontline staff positions and do not have the opportunity to contribute to other areas such as study design and developing research questions (Jeske et al., 2022). These changes are needed to ensure that the goal of increasing diversity in our samples is accompanied by meaningful discoveries about the family processes of these groups.

Finally, all family science researchers, not just those who specifically study historically marginalized and excluded groups, should seek to build their cultural competence by increasing their knowledge about other cultures and their ability to function effectively in different cultural settings. Researchers must also approach their work with cultural humility, which involves a continuing process of self-reflection on our own culture and how our own assumptions, biases, and values impact our research (Tervalon & Murray-García, 1998).

Big-team science

Ultimately, the time, expertise, and funding necessary to recruit a large and diverse sample of families may be beyond the capacity of a single lab or researcher. To address this issue, some social science fields have developed organizations that facilitate large-scale multi-laboratory collaborations, such as the Psychological Science Accelerator (Moshontz et al., 2018) and the ManyBabies project (Visser et al., 2022). Big-team science makes it possible for groups of researchers to collect samples that rival the size of those available in large publicly available datasets, but with a protocol designed specifically to answer their research questions of interest. As outlined by the ManyBabies project, there are also benefits to the field beyond improving samples: The collaborative, consensus-building approach encourages researchers from different

theoretical backgrounds and viewpoints to come together, which can contribute to greater theoretical advances. The large-scale collaborative approach also facilitates discussion and examination of research practices and ideally a consensus about the best methods to be used. Encouraging participation from labs located all over the world (and supporting expenses for under-resourced investigators) promotes diversity across multiple dimensions of research, including context, researchers, and participants, and these dimensions can then be systematically investigated as a source of variability in key family science phenomena.

The COVID-19 pandemic seems to have catalyzed the use of big-team science to examine the impact of the pandemic on family relationships around the world. The global scale of the event, combined with the widespread adoption of technology that allowed for distant collaborators to interact and work together, inspired a number of large collaborative efforts. For example, a team of 14 researchers representing eight different countries collected data from 3593 participants in 57 countries to examine the extent to which perceived partner responsiveness buffers against the spillover of pandemic-related stress to their relationship (Balzarini et al., 2023). Similarly, but on an even larger scale, a team of 95 researchers from around the world came together to collect data from 14,020 participants across 27 countries to examine whether perceived partner dyadic coping moderated the association between experiences of COVID-19 psychological distress and relationship quality (Randall et al., 2022).

Hopefully the pandemic-inspired interest in big team science will continue and extend to examining other basic family processes. Despite the many benefits of big-team science, there are a number of methodological challenges involved in the process, including ensuring that measures are valid across different languages and cultures. Additionally, extra care must be taken by researchers from the United States and other Western countries to ensure that they are not engaging in scientific colonialism, in which researchers from the Global North choose the research questions and methodologies, and researchers from the Global South are asked to collect data without the opportunity to shape the research in ways that would be meaningful within their local context.

CONCLUSION

Collecting large and diverse samples can be challenging for family science researchers, particularly those using intensive methods such as multi-wave longitudinal studies, daily diaries, ecological momentary assessment, and video or audiotaped observation to study family processes. The resources available to each researcher are finite, and typically trade-offs in terms of methodology, sample size, and sample composition must be made (Forscher et al., 2023). Too often in quantitative research, the trade-offs are made in favor of methodological rigor, at the cost of gathering a large and diverse sample.

Moving forward, family scientists must attend to these issues of sampling, and the strategies outlined above provide innovative ideas for how family scientists can improve the samples used in their research. Using sufficiently powered samples that are reflective of the broad range of human diversity will ensure that quantitative research on family processes is replicable and more broadly generalizable. In addition, increased adoption of these (and other) innovative methods will allow family science to advance as a field by being better equipped to conduct comprehensive theory testing, adjudicate mixed results, establish causality, and generate entirely new knowledge about families who have been historically underrepresented and marginalized in our research. Importantly, inclusion of historically underrepresented groups in our samples should not be done only to test whether existing theories and findings from SNAF samples generalize to non-SNAF samples. Instead, historically marginalized groups must also be centered within the research process as a primary source of knowledge about their unique perspectives and experiences, and not simply as a comparative or secondary perspective to the “norm” (Rogers et al., 2023).

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