

ATTACHMENT 10 – Background on Dietary Recall of the Past and Use of Focus Groups

Dietary recall of the past

When asking participants to self-report data on daily life activities, researchers are relying on autobiographical memory (Brewer, 1986, 1994) and responses to questions are provided as a result of multistage recall processes (Tourangeau, 1984). Self-report of daily life activities or dietary intake is a complex task of cognitive processes that can be prone to distortion. Epidemiologic studies typically use food frequency questionnaires, structured interviews of foods consumed, and food diaries to ascertain dietary data (W. C. Willett & Lenart, 1998). Although some researchers note concern for errors in autobiographical dietary recall (Dwyer & Coleman, 1997; Marshall, 2005; Wu, Whittemore, & Jung, 1988) and others note the influence that current intake could have on the accuracy of recall (Bakkum, Bloemberg, van Staveren, Verschuren, & West, 1988; T. E. Byers et al., 1983; Dwyer & Coleman, 1997; Dwyer et al., 1989; Friedenreich, Slimani, & Riboli, 1992; Jensen, Wahrendorf, Rosenqvist, & Geser, 1984; Rohan & Potter, 1984; Thompson, Metzner, Lamphiear, & Hawthorne, 1990; van Staveren et al., 1986; Wu et al., 1988), most highlight the utility of retrospective dietary recall as a reliable indicator when the recall period is from 1 to 10 years (Ambrosini et al., 2003; T. Byers, Marshall, Anthony, Fiedler, & Zielezny, 1987; Jain, Howe, Harrison, & Miller, 1989; Lindsted & Kuzma, 1990; Tourangeau, 1984; W. Willett, 1998), 15–20 years (Jensen et al., 1984), and with time periods exceeding 20 years (Dwyer et al., 1989; Maruti et al., 2005; Pietinen et al., 1988; Wolk, Bergstrom, Hansson, & Nyren, 1997). It is well accepted that it is better to inquire about the past diet than to use current diet as an estimate of the past.

There are few alternatives for assessing dietary data in the distant past. Studies to date have used different dietary methodologies at two time points and evaluated differences in nutrients and foods that could be compared. One study had the original food record data to evaluate the validity of childhood dietary intake recalled by adults (median age 50 years) more than 3 decades later (Dwyer et al., 1989). Although general validity based on food records was poor, recall for dairy foods were better recalled than many other foods ($r=0.25$ for age 5-7, $r=0.22$ for age 18 and $r=0.55$ for age 30). Recall of adolescent diet by women aged 40-65 at entry showed reasonable reproducibility for two administrations of a food frequency questionnaire (FFQ) about high school diet (overall $r=0.57$, $r=0.66$ for alcohol) (Frazier, Willett, & Colditz, 1995). Validity of adolescent dietary intakes recorded with food records and recalled after 48 years with a food frequency questionnaire showed some foods (e.g., diet soda $r=0.99$, hot breakfast cereal $r=0.93$, hot beverages $r=0.70$, eggs $r=0.51$, potatoes $r=0.54$) were recalled reasonably well after 3-6 decades but nutrients and other foods were not well recalled (Chavarro, Rosner, et al., 2009).

Although adults can report their own diet to about 25 years in the past (Friedenreich et al., 1992), little work has been done on recall of their children's intake in the distant past. Chavarro et al. (Chavarro, Michels, et al., 2009) studied the validity of maternal recall of preschool diet for children aged 3–5 years using an FFQ after 43 years. Results indicate that while some foods (e.g., eggs $r=0.47$, high carbohydrate foods $r=0.40$) were recalled reasonably well, there was a general lack of validity for nutrients and foods from maternal responses based on a FFQ four decades later when compared with food records. The food frequency questionnaire provides a different type of information than food records and requires different cognitive tasks than those used in the planned focus groups.

The study designs used in the studies to date are not germane to current work of assessing general dietary habits or to the inherent utility of group dynamics to recall activities in the distant past. Although difficulty in recall may remain an issue, focus group discussions among participants about lifestyles and events of that time period should improve recall of the type and amounts of foods consumed. The distributions of intakes for age/gender groups derived from these data will improve the dose estimation. Smith et al. (A. F. Smith, Jobe, & Mingay, 1991) examined the reliability of dietary recall and concluded participants tend to rely on generic memory as the recall period increases and may be basing their reports on generic memory but added that “If dietary reports are based substantially on generic memory, perhaps generic memory is what epidemiologists should ask about”. Focus groups take advantage of recurring events in the past that characterize generic memory.

Use of Focus Groups

Recent data suggests that elders benefit from group discussions of topics from the past. In fact, it was found that “collective recollection of past memories enhances memory performance” (Haslam et al., 2010) and a story reminiscence group was associated with enhanced cognitive outcomes (Haslam et al., 2014). In general, groups were found to be superior to individual recollection of past events.

Although focus group data may not be generalized to larger populations (Edmonds & American Marketing Association, 1999; Merton, Lowenthal, & Kendall, 1990; Morgan & Krueger, 1997), there may be occasions when it is the only reasonable alternative to conducting numerous in-depth individual interviews. Previous research used focus group interview methodology both in the United States and abroad to collect data about nutrition knowledge, attitudes, and intake patterns among the general population and in a village setting (Edmonds, 2005; Elmubarak, Bromfield, & Bovell-Benjamin, 2005; Hargreaves, Schlundt, & Buchowski, 2002; Inger M. Jonsson, Hallberg, & Gustafsson, 2002; I. M. Jonsson, Wallin, Hallberg, & Gustafsson, 2002; Kruger & Gericke, 2003; Satia et al., 2000). These focus groups were primarily designed to collect qualitative dietary data such as types of foods consumed, beliefs about the health and nutritional value of foods, and reasons for eating certain foods. In at least two studies, participants were also asked to quantify frequency or amount of food/drink consumed or fed to children (Edmonds, 2005; Kruger & Gericke, 2003). Focus group interviews seems to be the best research approach available because they have been shown to increase participant comfort when individuals are gathered into homogeneous groups (Kitzinger, 1995; Krueger & Casey, 2000; Lakshman, Charles, Biswas, Sinha, & Arora, 2000), generate a broader range of thoughts than individual interviews (Kitzinger, 1995), and allow for a general discussion of memorable events among participants along with the judicious use of recall cues that have been shown to aid autobiographical memory recall (Brown, Keenan, & Potts, 1986; Ervin & Smiciklas-Wright, 1998; Klein & Kihlstrom, 1986; Klein & Loftus, 1988; Klein, Loftus, & Burton, 1989; McDonough & Gallo, 2008; Rogers, Kuiper, & Kirker, 1977; R. E. Smith & Hunt, 2005).

Kazakhstan Focus Groups

In a similar radiation exposure study (Land et al., 2015) of dairy food consumption in the distant past among rural communities in Kazakhstan, there was a novel use of focus groups to attain distributions of intakes among children and young adults (Schwerin et al., 2010). In contrast to previous studies on recall of dietary intakes in the past, the focus group methodology may have improved recall through the discussions about the events, lifestyles and practices. The teams’

observations suggested that much back and forth comments about village life during this period may have aided recall. Consistent general answers elicited through focus group interviews should improve the estimation of dose. Although the specific amounts may not be accurate for a given individual, the probability of consuming a particular amount for a child of a specific age, gender, and ethnicity will be more reliable than previous assumptions.

Some of the lessons learned from the Kazakhstan experience with relevance to the New Mexico focus groups were as follows: (1) when asking about the quantity and volume of dairy consumption, use of glasses and dishes graduated in size and volume and that were commonly used by residents in that time period were important as reference points; (2) for a more clear understanding of information being collected a large poster-sized paper wall chart was used where assistant moderators would record consumption data for the entire group to view and guide the moderator, which could improve data quality; (3) questions in the focus group guide were few and simple; and (4) a predictable pattern of responding was created to ease cognitive burden; participants were methodically stepped through questions for each child age group (i.e., for children from birth to 12 months old, 1 to 3 years old, 4 to 6 years old, 7 to 14 years old, and age 15 and older) by dairy consumption (i.e., first for milk type: breast milk, cow, goat, sheep, and mare; second for dairy products).

Several assumptions were modified as a result of information obtained from the focus groups. In particular, assumptions previously held by the study team were disproven and new information was gained. Through the focus groups, it was learned that there was no difference between boys and girls for the types of milk and dairy products consumed, children did not drink camel milk, young children did not consume large quantities of fresh horse and sheep milk, consumption by Russian and Kazakh children differed by the amount and type of milk; in contrast to the Kazakh's intakes the Russian children did not consume any goat, sheep, or horse milk. It was learned that horse milk was only available 1 to 2 months a year, which impacted its relevance to radiation exposure. Finally, previously no information was available about milk intake during pregnancy and lactation, which is important for *in utero* and infants' exposure. This information helped develop dose estimates for the most vulnerable groups.

As a result of the mortality of other village elders over time, it may be that participants available for the study had different daily life practices than others who had died. There is no way to discount this potential bias but questions were designed to ask about their own life practices and follow-up probes asked if their experience was different from others in the village they knew. There was no indication in the data that the participants' responses were different from typical village life at that time and there were many similarities across communities. The general differences of reported intakes by age and ethnicity and consistencies across focus groups suggest some underlying validity to the reports.