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Grandmotherhood in Ukraine: Behavioral Variation and Evolutionary Implications

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**GRANDMOTHERHOOD IN UKRAINE: BEHAVIORAL VARIATION AND
EVOLUTIONARY IMPLICATIONS**

A Thesis Presented

by

SOFIYA I. SHREYER

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

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ABSTRACT

GRANDMOTHERHOOD IN UKRAINE: BEHAVIORAL VARIATION AND EVOLUTIONARY IMPLICATIONS

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Grandmothers are known to increase the health and well-being of their grandchildren in many different populations. However, grandmothers may vary in their contributions based on their relatedness to their grandchildren. In some populations, maternal grandmothers decrease the risk of mortality and increase the health of their grandchildren more than paternal grandmothers. Grandmaternal influence also sometimes varies based on the gender of the grandchild. The behavioral mechanisms of grandmaternal investment are not well understood and have not been explored in the heavily intergenerational context of Eastern Europe. This study examines the behavioral variation of sixty-two Ukrainian grandmothers through interviews and a semi-structured questionnaire. I test whether maternal and paternal grandmothers differ in face-to-face contact with their grandchildren and whether the gender of the grandchild influences the frequency of face-to-face contact. Additionally, I examine qualitative responses from grandmothers on various aspects of childcare to determine whether maternal and paternal grandmothers have different childcare strategies and experience grandmotherhood in different ways. I found that maternal grandmothers have significantly more face-to-face time with their grandchildren (173.8 days out of the year as compared to 87.5 for paternal grandmothers, $p < 0.001$), and the gender of the grandchild did not determine how often the grandchild saw their grandmother. Maternal and paternal grandmothers differed in the activities they performed with grandchildren: maternal grandmothers were more likely to engage in walking, reading, art, sports, and schoolwork. Paternal grandmothers, on the other hand, were more likely to mention playing and vacation. Though, the magnitude of the behavioral differences was not statistically significant. Maternal and paternal grandmothers did not differ in how they discussed their grandmotherhood identity. The unique cultural context of a post-socialist state likely encourages maternal grandmother caretaking through growing rates of single motherhood and father absenteeism.

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CHAPTER 1

INTRODUCTION

Grandmothers are one of the most common and most influential allomaternal caregivers in the world (Sear and Mace 2008; Kramer 2010), often surpassing fathers, siblings, and other relatives in terms of contributions to children. Grandmaternal dedication of time and resources has been well recorded in different populations (Sear and Mace 2008; Coall and Hertwig 2010; Voland et al 2005). In a systematic review across forty-five populations, Sear and Mace (2008) found that grandmothers improved children's survival in over 60% of studies and appear to be almost universally beneficial in improving the fitness of their daughters (or daughters-in-law) and grandchildren. The level of contributions that human children and grandchildren receive from grandmothers is unmatched in the animal kingdom and may have shaped the human lineage in significant ways. Grandmaternal investment may have extended the human lifespan, created an environment in which women were able to shorten their inter-birth intervals, and contributed to the extraordinary sociality of our species (Lahdenpera et al. 2004; van Schaik and Burkart 2009; Hawkes and Coxworth 2015).

However, not all grandmothers contribute equally to their grandchildren. Several studies examining variation in grandmothing found that maternal and paternal grandmothers differ in their effects on families (Sear et al. 2000; Jamison et al. 2002; Voland and Beise 2002; Gibson and Mace 2005; Pollet et al. 2007; Johow et al. 2011; Perry et al. 2014; Zhang et al. 2019). Voland and Beise (2002) utilized historical data from parish registries in Germany to assess whether grandmothers had an impact on the reproductive success of their children. They found children born without a maternal grandmother nearby had a significantly higher risk of mortality. Interestingly, in the first month of an infant's life, living with a paternal grandmother increased

the risk of mortality. Similarly, a review of historical families in England found that maternal grandmothers increased the likelihood of a child surviving to age five from 81% to 90% (Ragsdale 2004). In a historical sample from Tokugawa, Japan, Jamison et al. (2002) found that the presence of a maternal grandmother in the household decreased the risk of mortality in children by nearly 35%, compared with paternal grandmothers who *increased* the risk of mortality in grandchildren by 10%. Among modern day populations, Gibson and Mace (2005) found that maternal grandmothers in Ethiopia improved their grandchildren's height and weight, and were more likely to help in their daughter's household than their son's. In rural Gambia, as well, maternal grandmothers were found to be the only grandparent to have significant positive influence on the health of their grandchildren (Sear et al. 2000).

The differential investments of grandmothers have been explained in relation to paternity certainty (Euler and Weitzel 1996; Chrastil et al, 2006; Pollet et al, 2007; Bishop et al, 2009). Maternal grandmothers have near 100% certainty that their grandchildren are theirs since they bore their daughters and their daughters bore the grandchildren. Paternal grandmothers have less paternity certainty in their grandchildren because their daughters-in-law may have mated with other males. Theoretically this would mean that, within societies that have high paternity certainty through surveillance and control of women within households, paternal grandmothers should invest more. As Voland and Beise (2002) discussed, while paternity certainty would have been very high in historic Krummhorn, Germany, paternal grandmothers still exhibited a negative impact on their grandchildren. Similarly, in patrilineal and patrilocal rural Ethiopia, Gibson and Mace (2005) also found that matrilineal kin, especially grandmothers, are influential in child health and survival.

There are three possible means by which grandmothers may influence the mortality/survival of their grandchildren. Grandmothers may indirectly reduce the risk of their grandchildren's death by reducing the risk of the mothers' death. Grandmothers may directly reduce the risk of grandchildren's deaths by providing care and help. And, grandmothers may influence the interbirth intervals and age-at-first-birth of their daughters by providing care and helping to wean grandchildren earlier (Ragsdale 2004). Maternal and paternal grandmothers may go about these efforts in different ways. It is possible that the variation in grandmothers' influence is a side effect of a strained and stressful relationship between mothers-in-law and daughters-in-law (Volland and Beise 2002), through which mothers-in-law expose pregnant daughters-in-law to heavy domestic tasks (Johow et al. 2011; Sharmeen et al. 2013) or worse nutrition than their own daughters (Doan and Bisharat 1990). It may be more beneficial for a paternal grandmother to undermine the relationship between her son and her daughter-in-law in order to increase her son's access to other females (Sear et al. 2002). Maternal grandmothers, on the other hand, may be dedicating their time to more arduous household chores to ease their daughters' household labor (Gibson and Mace 2005).

The varying grandmaternal investment based on the gender of the grandchild is another puzzle. Both Gibson and Mace (2005) and Jamison et al. (2002) found that paternal grandmothers were likely to have a negative impact on a male grandchild but not on a female grandchild. As a possible explanation, Fox et al. (2010) suggest that paternal grandmothers are more likely to invest in female grandchildren because those grandchildren are more likely to share a larger percentage of their X chromosome-linked genes. A grandson, on the other hand, would have inherited a Y chromosome from his father, therefore sharing no X-linked traits with a paternal grandmother. Fox et al. (2010) tested their hypothesis by compiling datasets that had

information on childhood survival, grandchild gender, and kinship relationship of the grandmother. They were able to support their X-chromosome relatedness hypothesis and found that the effect of grandmother's presence on grandchild mortality was dependent on her X-chromosome relatedness to a grandchild. In all seven populations that Fox et al. (2010) tested, boys were much more likely to survive with a maternal grandmother than a paternal grandmother, and in all but one population, paternal grandmothers had a stronger beneficial effect on girls than boys.

What grandmothers are doing to have such strong positive or negative effect on their families is not as well understood, since many studies utilize historical records for analysis or large-scale datasets with limited behavioral information. Gibson and Mace (2005) were among the first to examine behavioral variation among grandmothers. They found that Ethiopian maternal grandmothers are contributing more to their daughters' households-- grandmothers were more likely to be spotted in their daughter's household than their son's, even if they had to travel to a different village to visit them. Maternal grandmothers, when visiting their daughter's household, were more likely to be engaged in heavy domestic tasks-- such as collecting wood or grinding maize, while paternal grandmothers were more likely to be engaged in agriculture related tasks. In an industrialized example from Britain, Pollet et al. (2009) found that maternal grandmothers have more frequent contact with their daughters and were more likely to provide financial assistance. Sear et al. (2000), after finding that maternal grandmothers are most beneficial during toddler years, additionally suggested that grandmothers may provide an adaptive boost during the vulnerable time of weaning, during which children are exposed to novel pathogens and other dangers. In 2011, Johow et al. also addressed potential mechanisms behind the differential effects of paternal and maternal grandmothers. However, this paper uses a

large historical dataset from the 19th century, limiting the analysis of behavior within the household. Very limited research has been done to explore the *why* and the *how* of maternal/paternal grandmother differences in terms of behavior within the household.

This project addresses a void within grandmaternal studies by focusing on behavioral differences among grandmothers through interviews. It is guided by two overarching questions: do maternal and paternal grandmothers differ in their childcare strategies? And, do maternal and paternal grandmothers differ in how they perceive their identity as grandmothers? I hypothesize that although maternal grandmothers will be more active caretakers and see their grandchildren more often, maternal and paternal grandmothers will not differ in what the grandmother identity means to them.

CHAPTER 2

METHODS

A. Study Description

I conducted this research in three locales in eastern Ukraine. Ukraine provides an ideal case study for maternal/paternal grandmother differences because it is neither heavily matrilineal or patrilineal, so either grandmother may have influence and access to grandchildren. Additionally, grandmothers are vital childcarers as most women are in the workforce, and many families are intergenerational (Parelli-Harris 2008). Research was conducted in an urban setting (Kharkiv, pop= 1.4m), a semi-urban setting (Lebedyn, pop= 25,617), and a rural setting (Sanzhary, pop=1,283). A total of 62 interviews were conducted-- 32 in Kharkiv, 18 in Lebedyn, and 12 in Sanzhary. Interviews included semi-structured questionnaires that asked women about their health and well-being, reproductive history, residence/access to grandchildren, and childcare. Participants were recruited by word of mouth, as well as by approaching grandmothers who often sit outside their homes on benches to watch grandchildren play.

B. Part 1: Frequency of Face-to-Face Contact

Grandchild investment data were collected for each individual grandchild. Each grandmother was asked if she knows if the grandchild has another grandmother, and how much time the grandchild spends with the other grandmother. If the grandchild is currently older, I asked the grandmother to answer the questions based on a time when she saw the grandchild most often. Based on that information I was able to build a table with information on frequency of contact (defined as number of days spent together) for each grandchild with both maternal and paternal grandmothers.

I fit linear mixed models to my data using the lme4 package in R (Bates et al. 2015) to examine whether grandchildren spend more time with their maternal or paternal grandmothers, and whether this varies based on grandchild's gender. A mixed model is necessary because grandmothers had multiple grandchildren, which means that some grandchildren in this dataset have the same grandmother (i.e., the same grandmother was measured repeatedly). A mixed model accounts for the non-independence of these data. Models exploring the difference between maternal and paternal grandmothers included frequency of contact (days seen per year) as the dependent variable, grandmother type (maternal or paternal) as the predictor variable, and Grandmother ID as a random effect variable.

Models examining differences in grandchild gender were similar, except grandmother type as a predictor variable was replaced by gender of the grandchild, and individual tests were done for the paternal grandmother sample and the maternal grandmother sample. To estimate significance of the model, null models were also constructed for each outcome and compared with the study model using the ANOVA function in R.

C. Part 2: Childcare Strategies and Grandmother Identity

Semi-structured interviews prompted grandmothers to talk about what types of activities they do with their grandchildren (or did when their grandchild was younger and required childcare), what hobbies or activities they encourage, and if there is anything they do with their grandchildren that the parents don't do, or do less often. To explore grandmotherhood identity, grandmothers were asked about the roles of grandmothers in general, and what makes them feel positive or negative in regard to being a grandmother. All of the questions were open response

questions. Their answers were recorded on a survey and later translated from Russian or Ukrainian into English and transcribed. To explore frequency of behaviors, grandmothers' volunteered responses to open-ended questions about activities that they do/did with their grandchildren were collapsed into the following categories:

- Walking
- Reading
- Playing (any play activity mentioned such as dolls, Legos, hide and seek, etc.)
- Art (drawing, sculpting, and music)
- Sports (included swimming, tennis, hiking, soccer, mountaineering, ballet, and going to the gym)
- Vacation (when grandchildren would either spend their vacation at their grandmother's or they would vacation together in a separate location)
- Culture (emphasizing learning Ukrainian language, reading Ukrainian folktales and poetry, singing traditional songs, cooking traditional foods)
- Storytelling (combined category for grandmothers who emphasized long, involved conversations and storytelling)
- Household (encouraging and teaching grandchildren to participate in household chores)
- Cooking (both for and with grandchildren)
- Homework (spending time on grandchild's schoolwork)

Chi-square analyses were used to determine whether activities performed by grandmothers differed based on their relationship to their grandchildren (maternal grandmothers, paternal grandmothers, and both maternal and paternal grandmothers). Additionally, chi-square analyses

were done to test whether the location of the interview (urban, suburban, or rural) and education level of the grandmothers (high school or less, associates, bachelor's, and postgraduate) had an effect on activities mentioned by the grandmothers. An analysis of variance was used to test the relationship between grandmother relatedness and the number of mentioned caretaking behaviors. Thematic analyses were used to identify common themes within each prompt (caretaking activities and grandmaternal roles). Thematic analyses are helpful in extrapolating pertinent narratives from qualitative data (Braun and Clarke 2006). All statistical analyses were performed in R.

CHAPTER 3

RESULTS

A. Demographics

From the 62 interviews conducted, 24 were with a maternal grandmother, 22 were with a paternal grandmother, and 16 were with grandmothers who are both maternal and paternal. Grandmothers had an average of 1.8 children and ranged in age from 43 to 84 years old (average 67.6). Grandmothers had an average of 2.6 grandchildren ranging in age from 1 month to 35 years old (average 13.97). There was a total of 128 grandchildren. An analysis of variance showed that the only statistically significant demographic differences between grandmother groups was that grandmothers who were both maternal and paternal had more children and grandchildren (Table 1). Chi-square tests of independence examining grandmaternal status (maternal, paternal, both) and location did not reach significance.

	Maternal (n=24)	Paternal (n=22)	Both (n=16)	Total (n=62)
Age (years)	67.17	65.14	70.5	67.6
# of Children	1.54	1.59	2.19***	1.77
# of Grandchildren	1.75	2.14	3.81***	2.6
Education (years)	13.5	13.18	12.88	13.18
Kharkiv (Urban)	n=14	n=12	n=6	n=32
Lebedyn (Semi-Urban)	n=7	n=5	n=6	n=18
Sanzhary (Rural)	n=3	n=5	n=4	n=12

Table 1. Sample characteristics by age, reproductive history, education, and site.

***= $p < 0.001$

B. Part 1: Frequency of Face-to-Face Contact

The frequency of face-to-face contact is shown through a bar graph in Figure 1. The data set had a total of 256 observations (two per grandchild). On average, maternal grandmothers saw their grandchildren 173.8 days out of the year, while paternal grandmothers saw their grandchildren 87.5 days out of the year. Maternal grandmothers were more likely to see their grandchildren every day of the year (41.2% of maternal grandmothers reported every day contact) compared to paternal grandmothers (17.8%). Results of the linear mixed model comparing frequency of face-to-face contact between maternal and paternal grandmothers show that paternal grandmothers saw their grandchildren significantly less than maternal grandmothers ($p < 0.001$; Table 2). The gender of the grandchild was not a significant factor in determining frequency of contact with either paternal (Table 3) or maternal grandmothers (Table 4).

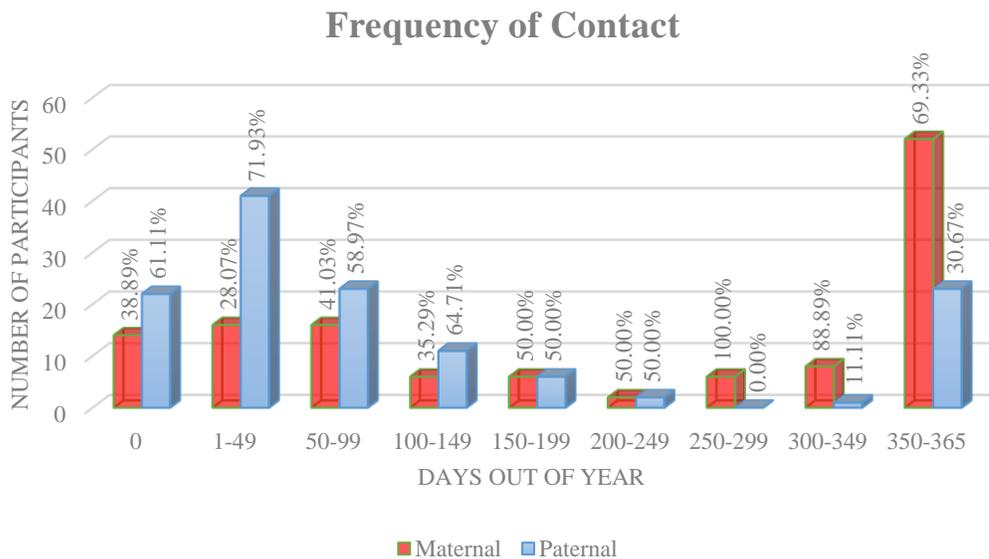


Figure 1. Difference in frequency of grandchild face-to-face contact (in days out of the year) between maternal and paternal grandmothers. Percentages signify the proportion of maternal and paternal grandmothers for each time category.

Fixed effect	Estimate	Std. error	t value	P
(Intercept)	207.24	13.07	15.86	
Grandmother Type (Paternal)	-101.73	17.66	-5.761	<0.001***

Model AIC = 3276.9

loglikelihood = -1634.5

Grandmother ID was used as a random effect.

Table 2. Results of a linear mixed model predicting frequency of face-to-face contact with grandchild.

Fixed effect	Estimate	Std. error	t value	P
(Intercept)	206.51	19.52	10.58	
Grandchild (Male)	1.18	25.25	0.05	0.96

Model AIC = 1635.3

loglikelihood = -813.6

Grandmother ID was used as a random effect.

Table 3. Results of a linear mixed model predicting frequency of face-to-face contact with grandchild by gender of the grandchild for **maternal grandmothers**.

Fixed effect	Estimate	Std. error	t value	P
(Intercept)	96.27	17.34	5.55	
Grandchild (Male)	25.43	21.75	1.17	0.24

Model AIC = 1626.8

loglikelihood = -809.4

Grandmother ID was used as a random effect.

Table 4. Results of a linear mixed model predicting frequency of face-to-face contact with grandchild by gender of the grandchild for **paternal grandmothers**.

C. Part 2: Childcare Strategies and Grandmother Identity

1. Childcare Strategies

Grandmothers did not significantly differ in their childcare strategies based on their relatedness to their grandchildren (Table 5). However, maternal grandmothers reported walking, reading, doing creative and physical activities, and participating in the grandchild's schoolwork at a higher rate than paternal grandmothers and grandmothers who were both maternal and paternal (Figure 2). An analysis of variance showed that maternal grandmothers were significantly more likely to discuss more types of childcare activities ($p=0.02$) than paternal and maternal and paternal grandmothers.

	Maternal (n=24)	Paternal (n=22)	Both (n=16)	P-value	Total (n=62)
Walking	17 (70.1%)	12 (54.5%)	7 (43.7%)	0.216	36
Sports	15 (62.5%)	8 (36.3%)	11 (68.7%)	0.08	34
Playing	10 (41.7%)	11 (50%)	8 (50%)	0.81	29
Art	14 (58.3%)	6 (27.3%)	7 (43.8%)	0.1	27
Reading	12 (50%)	6 (27.2%)	6 (37.5%)	0.28	24
Household	8 (33.3%)	7 (31.8%)	5 (31.3%)	0.98	20
Cooking	6 (25%)	4 (18%)	6 (37.5%)	0.4	16
Homework	10 (41.6%)	4 (18.2%)	2 (12.5%)	0.07	16
Culture	5 (20.8%)	5 (22.7%)	6 (37.5%)	0.45	16
Vacation	3 (12.5%)	7 (31.8%)	3 (18.7%)	0.42	13
Storytelling	3 (12.5%)	3 (13.6%)	6 (37.5%)	0.1	12

Table 5. Frequency of a mentioned childcare behavior by maternal, paternal, and both maternal and paternal grandmothers. Percentages delineate frequency of mentioned activity / total number of women in the category (maternal, paternal, or both), i.e., 70.1% of maternal grandmothers mentioned walking.

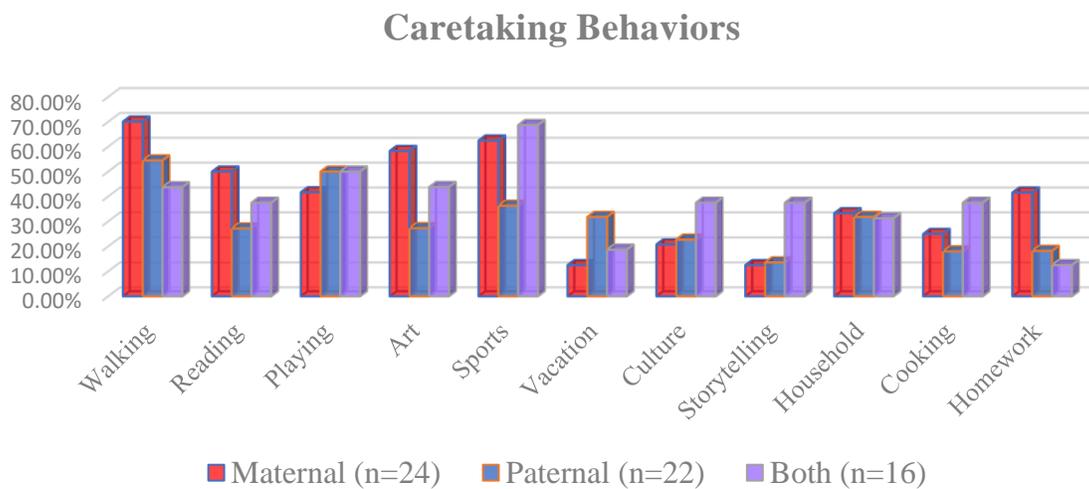


Figure 2. Frequency of a mentioned childcare behavior by maternal, paternal, and both maternal and paternal grandmothers. Percentages delineate frequency of mentioned activity / total number of women in the category (maternal, paternal, or both), i.e., 70.1% of maternal grandmothers mentioned walking.

In an analysis of grandmother’s location (urban, semi-urban, rural) and most frequently mentioned childcare behaviors, sport-oriented activities were significantly more likely to be emphasized in a semi-urban environment ($p=0.01$; Table 6). No significant relationships were detected between grandmaternal education status and most frequently mentioned childcare behaviors (Table 7).

	Kharkiv (Urban)	Lebedyn (Semi-urban)	Sanzhary (Rural)	p-values
Walking	22 (68.8%)	8 (44.5%)	6 (50%)	0.2
Sports	17 (53.1%)	14 (77.8%)	3 (25%)	0.01**
Playing	12 (37.5%)	12 (66.7%)	5 (41.7%)	0.12
Art	16 (50%)	7 (38.9%)	4 (33.3%)	0.54
Reading	12 (37.5%)	6 (33.3%)	6 (50%)	0.64

Table 6. Results of chi-square tests of independence between childcare activities and location, reporting observed frequencies.

	High school	Associate's	Bachelor's	Postgraduate	p-values
Walking	1 (33%)	11 (47.8%)	21 (65.6%)	3 (75%)	0.3
Sports	0	12 (52.2%)	21 (65.6%)	1 (25%)	0.23
Playing	0	13 (56.5%)	14 (43.7%)	2 (50%)	0.65
Art	0	11 (47.8%)	14 (43.7%)	2 (50%)	0.79
Reading	1 (33%)	8 (34.7%)	13 (40.6%)	2 (50%)	0.6

Table 7. Results of chi-square tests of independence between childcare activities and grandmother’s education level, reporting observed frequencies.

2. Grandmothers' Narratives on Childcare

Maternal grandmothers were much more likely to engage in time- and energy-consuming activities that focus on their grandchildren's development and intellectual growth. Besides reading, maternal grandmothers were also more likely to recite and have children memorize poetry (10% compared to 3%), more likely to bring them to theaters (15% compared to 0%) and museums (10% compared to 0%) than paternal grandmothers. Maternal grandmothers were also more likely to encourage and push grandchildren to read and to create art (drawing, painting, and sculpting), and 42% of maternal grandmothers (compared to 18% of paternal and 13% of both maternal and paternal) were actively involved in their grandchildren's schoolwork. Four of the grandmothers articulated to me why they emphasize creative activities with their grandchildren. They spoke about the importance of raising a well-rounded individual who understands different perspectives in life.

One of the grandmothers discussed how she has a "holistic approach to life and learning" so her grandchildren grew up to be "curious about everything and graduated with a gold medal" (equivalent to summa cum laude in the U.S.). She attributed this to her approach to babysitting them— "I never just let them do their own thing... I engaged with them deeply and cared about their growth." She often played engineering activities with her grandchildren such as Legos, as well as frequently putting on a puppet theater to encourage story telling. Other maternal grandmothers discussed the importance of teaching grandchildren to explore and express their emotions. For example, a maternal grandmother expressed to me that some of the most important things that her grandchildren gained from her presence were calmness and logical reasoning. Her

grandchild, she said, grew up to “not get too angry too quickly, when she gets sad to think critically about why she’s sad, and I encourage her to share stories and feelings.”

Paternal grandmothers placed a deeper emphasis on discipline, describing their legacy to their grandchildren as “he learned to never “growl” at adults” and “learning to make decisions independently, they feel like individuals with us.” Interestingly, this dynamic arises in the types of activities paternal grandmothers do with their grandchildren. For example, one paternal grandmother explained that she emphasized “walking barefoot in the gardens, and not wrap her up too much in blankets and jackets or coddle her”, instead, harden her up because her grandchild’s parents are “too afraid to engage with her”. It is important to note that, although this grandmother saw it as her role to “harden” her grandchild, she did it more through fun play time, tomfoolery, and hanging out by the river. She also encourages art and drawing whenever she spends time with her granddaughter. This difference persists regardless of the gender of the child.

3. Grandmaternal Roles

I asked participants to elaborate on what they think are the most important roles of grandmothers. Two themes emerged as the most prevalent grandmaternal roles—to be a sanctuary for grandchildren, and to aid with childcare. Maternal and paternal grandmothers did not differ in how they answered these questions.

a. Grandmother as Sanctuary

Grandmothers repeatedly discussed being a sanctuary for their grandchildren and highlighted their relationship with their grandchild as different than what the grandchild has with

their parents. This was touched upon in many different forms. For example, one grandmother described how her grandson and she had a code language that his parents do not understand, so he can call her and share stories with her without his parents knowing. Another grandmother described herself as her grandchildren's "main pillar" because her grandchildren share things with her that they fear sharing with their parents. A common phrase used by grandmothers was that they try to be the "blanket and pillow", or a source of comfort. While some grandmothers used the term "sanctuary", many others talked about their main role being spoiling their grandchildren and providing a release from tense or strict relationships with their parents. From these stories, it becomes evident that grandmothers create an environment of unconditional love for their grandchildren, free of the tense and discipline-heavy relationship children have with their parents.

A few of the grandmothers talked about how they loved their grandchildren more than their own children, and how being a grandmother is different from being a mother. When prodded further, they explained that they have much more time now to dedicate to childcare than they did as mothers. Having more time to give attention to their grandchildren, in addition to having lifelong experience in childcare, allows grandmothers to bond deeper with their grandchildren. Their availability as well as their increased patience allows them to be a sanctuary for their grandchildren.

b. Grandmother as Help

One grandmother, when asked what she thinks the most important roles of grandmothers are, answered: "grandmothers are ambulances... they are always there for you, ready to provide emergency care, they are the safety net". This quote embodies a second theme that grandmothers discussed as being the primary source of help and assistance for their children. Both maternal

and paternal grandmothers discussed the importance of helping their children in any way they can. Grandmothers put pressure on themselves to “ensure everyone’s comfort”, which translates into house chores and cooking. Grandmothers also gave away as much of their pensions as they could, and often utilized their social networks to provide medical care and other necessities for their grandchildren. However, their primary definition of “help” was being available for childcare whenever their children needed it and helping with household chores.

A few grandmothers reflected on the importance of being “helpful” and “needed” as being a primary anxiety, sharing with me that they feel at their worst when they do not feel needed. One grandmother whose health rapidly declined in the past few years talked about how much she wishes she were still able to help her children with their house chores. Since her health declined, her husband stepped in to help their children—and she laments being home with no tasks. Grandmothers whose children live further away also talk about feeling “useless” or “meaningless” because they are not able to help their families with homemaking and childcare. These trends highlight the cultural expectations of grandmothers being self-sacrificing and taking on the grandmother identity as a primary identity. One grandmother told me, “When my grandchild was born, she cried so much at night—her parents used to quietly open my bedroom door, push the baby carriage into my room, and quickly close the door”. This was not a negative experience for her, but rather she welcomed the chance of helping the young couple, citing the fact that they needed sleep more than she did.

CHAPTER 4

DISCUSSION

Maternal grandmothers drawn from three sites in Ukraine spend more days in face-to-face contact with their grandchildren compared to paternal grandmothers. This supports the hypothesis that grandmothers differ in terms of investment, and that maternal grandmothers may invest more in their grandchildren. These results are in line with those of Gibson and Mace (2005), who found that grandmothers were much more likely to spend time in their daughter's household. Whether this is due to biological factors such as paternity certainty or societal factors such as emotional closeness between mothers and daughters remains unknown. However, the study presented here also showed that grandmothers do not discriminate their investment based on the gender of the grandchild, which throws the genetic relatedness hypothesis into question. If the amount of time and effort a grandmother invests into a grandchild is influenced by her judgement of genetic relatedness, sex of the child should also play a role (Fox et al. 2010). However, it is possible that while the effect of being a maternal or paternal grandmother is strong, the degree to which sex of the grandchild mitigates grandmaternal investment is weaker and more difficult to test with a small sample. Additionally, in industrialized countries with low fertility, grandmothers may not be able to choose which grandchild to invest in because they likely have one or two grandchildren. In an evolutionary context, even if grandmothers would *prefer* to invest in a certain sex, it is still beneficial to invest in a grandchild than not at all. Therefore, these findings do not necessarily dispute paternity certainty as an explanation.

While maternal and paternal grandmothers differ in how often they see their grandchildren, *what* they do with their grandchildren does not differ significantly. Even though significance was not reached, the trends in the data do support the idea that maternal grandmothers invest more heavily in their grandchildren in this population. A much larger proportion of maternal grandmothers (compared to paternal and both maternal and paternal) take their grandchildren for walks, read to them, do arts and crafts, participate in active games and sports, and do homework with them. Maternal grandmothers also reported significantly more activities than paternal and both maternal and paternal grandmothers, signifying a deeper involvement in care. This may be explained by the fact that maternal grandmothers see their grandchildren more frequently face-to-face, and have a chance to build a deeper relationship, get to know their grandchildren more, and have more time to do a wider range of activities.

The location of the grandmothers (urban, semi-urban, and rural) and their education level did not play a major role in childcare behaviors. However, grandmothers from semi-urban and rural locales were more likely to engage in physically active activities with their grandchildren, likely due to having more access to outdoors, safe bike riding, hiking, swimming, etc. Grandmothers were similarly likely to engage with grandchildren in culture-related activities—teaching the traditional Ukrainian language despite commonly spoken Russian, reading Ukrainian folktales and poetry, and singing Ukrainian songs. Grandmaternal influence on cultural transmission has been noted before (Bahr 1994; Saarela et al. 2020). Cultural transmission is particularly important in Ukraine, a country whose national identity has been consistently delegitimized by Russian resistance (Fournier 2002; Brudny and Finkel 2011).

When discussing the roles of grandmothers, participants generally fell into two themes: grandmothers as a sanctuary and grandmothers as help. Grandmothers felt that they actively

created an environment in which children felt comfortable, felt relief from the tense relationships with their parents, and could feel unconditionally loved and spoiled. In valuing and prioritizing the emotional well-being of their grandchildren, grandmothers are positively influencing the developmental outcomes of their grandchildren. Several studies have reported that grandchildren whose grandmothers are actively involved in childcare have lower depressive symptoms (Ruiz and Silverstein 2007), adjusted more successfully to adversity later in life (Tan 2018), and are overall more emotionally receptive and socially adjusted (Barnett et al 2010). Grandmaternal influence on the social and emotional development of children early in human evolution may have enabled the extreme capacity for sociality and mutual understanding that defines our species today (Hawkes and Coxworth 2015).

Although Ukraine is neither heavily matrilineal nor patrilineal, recent demographic shifts because of the collapse of the Soviet Union could have contributed to the prevalence of maternal grandmother activity due to the growing trend of single motherhood. Post-socialist countries today have some of the highest divorce rates in the world—out of the ten countries with the highest divorce rates in the world, eight are post-socialist, including Ukraine at number six (United Nations 2017). This is likely due to the cultural belief of marrying young, high rates of alcoholism among men, women’s traditional economic independence, increasing economic uncertainties (Utrata 2015), and high rates of intimate partner violence (Barrett et al. 2012). In the absence of fathers, paternal grandmothers are less likely to be involved with their grandchildren, while maternal grandmothers become an invaluable source of additional care. Additionally, decreasing state-funded childcare options necessitate women to seek care from relatives—most often grandmothers (Parelli-Harris 2008). This likely contributed to the finding that maternal grandmothers saw their grandchildren more frequently.

Although I was able to collect and quantify many grandmaternal behaviors in this study, both a limitation and a strength of my research is that grandmothers were not given a list of grandmaternal behaviors to choose from. Asking grandmothers to describe their own childcare experience produced rich qualitative data and childcare behaviors that I might not have thought of myself, but simultaneously, it is possible that grandmothers forgot or did not think of many childcare behaviors that they do on a daily basis. Additionally, my sample was not limited to grandmothers who have grandchildren in a specific age range, therefore it is possible that grandmothers with older grandchildren have a less clear memory about childcare. Finally, the frequency of face-to-face contact data utilizes grandmothers' knowledge of the "other" grandmother. Generally, grandmothers seemed knowledgeable and comfortable answering that question, but it may still hold some inaccuracies.

In this work, I was faced with a challenge of having a substantial subset of grandmothers who were both maternal and paternal. Since the goal of this research was to explore differences between maternal and paternal grandmothers, I treated them as a separate category for most analyses, and the categories were not an issue for frequency of contact analyses. In the future, I hope to analyze this subset to explore how grandmothers who are both maternal and paternal choose to invest in grandchildren, and if there are any biases towards specific grandchildren. Additionally, I hope to expand this research in the future with a more comprehensive understanding of the cultural and historical underpinnings of grandmotherhood through Soviet Ukraine and post-socialism, as well as expand my data with perspectives from mothers and grandchildren themselves. Having more intergenerational data will allow me to explore grandmaternal roles with greater depth as well as provide much needed data on the biosocial relationships of intergenerational households.

CHAPTER 5

CONCLUSIONS

Maternal grandmothers in Ukraine have more frequent face-to-face contact with their grandchildren, regardless of the gender of the child. Maternal grandmothers also have a broader approach to childcare and involve grandchildren in a wider variety of activities. The bias towards maternal grandmothers may in part be explained by the cultural and historical influences of a post-socialist state, in which divorce rates are high, most women are in the labor force, and childcare options are limited. Both maternal and paternal grandmothers see themselves as a sanctuary for their grandchildren and a source of unconditional assistance for their children. Although the scientific community has made great strides in grandmother studies, much about grandmaternal behaviors and roles in human evolution remain unknown. In a quickly aging world with dropping fertility rates, grandmothers must be seen as a vital resource and buffer to many of our world's problems.

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