THE SOCIAL AND CULTURAL MEANINGS OF INFERTILITY FOR MEN AND WOMEN IN ZAMBIA: LEGACY, FAMILY, AND DIVINE INTERVENTION

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ABSTRACT

Despite the high prevalence of infertility within the sub-Saharan sterility belt, infertility in Zambia is understudied, particularly from a social perspective. Furthermore, few studies in sub-Saharan Africa include the infertility experiences of men. This article seeks to fill this gap by qualitatively describing the ways in which infertility in Zambia is socially and culturally loaded for both men and women. Demonstrating fertility is necessary to be considered a full adult, a real man or woman, and to leave a legacy after death. People in Zambia, including medical professionals, currently lack the necessary information and access to (or ability to

provide) care to effectively resolve fertility issues. Infertile people manage their experience through a variety of social, emotional, spiritual, and medical strategies. However, no solution is considered adequate unless the intervention results in childbirth. In this way, infertility is about producing babies and the social meaning of that process, rather than the raising of children.

KEY WORDS

infertility, Africa, quality of life, culture, gender, death

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INTRODUCTION

Zambia, a country in sub-Saharan Africa (SSA) of 13.1 million people (ZDHS 2014), experiences both high fertility and high infertility. The fertility rate is approximately 4.7 children/woman (ZDHS 2018). Primary sterility rates, defined "biologically as never developing the capacity to reproduce," are 15% for women (Sunil & Pillai 2002) or higher. We currently do not have enough data to accurately estimate clinical infertility prevalence, though Zambia is in the SSA "infertility belt" where clinical infertility rates are significantly higher

45 than global averages, partly due to reproductive tract infections and tubal occlusion (Inhorn & van Balen
46 2002). Infertility can create social problems for people in SSA because "having children is a self-evident part
47 of the expected biography and not a matter of personal decision" (Hörbst 2009); we add that children are also
48 symbols of social status.

49 This article uses the WHO definition of clinical infertility: "the failure to achieve a clinical pregnancy after 12
50 months or more of regular unprotected sexual intercourse" (WHO 2020). Primary infertility refers to never
51 having had a pregnancy that resulted in a live birth. Secondary infertility refers to difficulty conceiving or
52 continuing a pregnancy to live birth after at least one pregnancy (ibid.).

53 While infertility in SSA is stigmatized for both genders (Dyer 2009), the social consequences for women are
54 greater (Fledderjohann 2012; Kimani & Olenja 2001; Gerrits 1997). Women experience increased domestic
55 violence from husbands and in-laws (Ameh et al. 2007; Dhont 2011; Stellar et al. 2016) and risk losing their
56 identities when womanhood is defined through motherhood (Hollos 2009; Silva 2009).

57 In SSA, there are diverse beliefs about causes of infertility, including use of contraception and witchcraft
58 (Dhont 2011; Upton 2001; Kimani & Olenja 2001). Women are often blamed for causing their own infertility
59 through "past promiscuity" (Kimani & Olenja 2001), thereby inciting God's wrath (Dutney 2007). Childless
60 women are often materially deprived by their families (Hollos 2009). Infertility's social significance in SSA
61 leads to high demand for treatment (Gerrits 2016, Ombelet 2008, Inhorn & Patrizio 2015). However, assisted
62 reproductive technologies are usually financially and/or logistically inaccessible in SSA (Gerrits 2016;
63 Stekelenburg et al. 2005; Gerrits & Shaw 2010; Inhorn & Patrizio 2015; Ombelet 2008; Ndegwa 2014;
64 Nachtigall 2006).

65 Despite its social importance, infertility is understudied in Zambia, as indicated by the lack of data on
66 infertility rates. Two quantitative studies (Pantazis & Clark 2014; Sunil & Pillai 2002) have found high sterility
67 prevalence and one study at University Teaching Hospital (UTH) found correlation among infertility, age, and
68 history of pelvic procedure. Two qualitative studies have examined the social lives of elderly childless women
69 in the Upper Zambezi region, including rural Zambia (Silva 2009), and fear of infertility among young women

70 in Lusaka Province (James 2019). Both studies found that infertility deeply negatively impacts women's social
71 lives and status. Furthermore, few SSA studies have addressed the experiences of infertile men (Hörbst 2009,
72 Dyer et al. 2009). This paper begins to fill these gaps by describing how social and cultural meanings of
73 infertility impact quality of life (QoL) for both men and women in Zambia.

74 Reproductive policy and research in Zambia focus on family planning, early pregnancy/marriage, and
75 maternal health (Zambia Ministry of Health 2018). Health policy acknowledges some barriers to infertility
76 healthcare access but is hampered by a dearth of research on the extent, causes, and social impact of infertility
77 in Zambia.

78 The findings presented are the first part of a mixed methods study of infertility in Zambia. We demonstrate
79 that infertility is socially and culturally laden for both men and women. Lack of access to care and social
80 responses negatively impact QoL for people with infertility. A second article will address knowledge
81 produced about social meanings of infertility through mixed methods research and a novel approach to
82 survey administration.

83 METHODS

84 The research described in this article was conducted by lead author Sydney Howe (SH) in Lusaka Province
85 between June and September 2019 through a research collaboration involving Cardiff University, the
86 University of Zambia (UNZA), and the University of Amsterdam; other publications from studies within the
87 larger collaboration are under review or in preparation. Kabuswe Mbalazi (KM), a Master's student and
88 trained UNZA research assistant, translated approximately five interviews from Bemba or Nyanja, and
89 transcribed most interviews with infertile participants. SH transcribed the remaining interviews; proofread,
90 edited, and added to transcripts in consultation with KM, then coded all transcripts in Atlas.ti.

91 # ETHNOGRAPHY

92 Men and women of reproductive age who self-identified as infertile were recruited mostly through health
93 workers in Lusaka and Chongwe, with assistance from UNZA academics and social contacts. Two
94 interlocutors did not meet the WHO clinical standard because fertility histories were unknown before
95 interviews. SH interviewed 22 infertile people (14 women, eight men) in 20 sessions (two married couples
96 interviewed together). Six men came alone, which is unusual for an infertility study (Gerrits 2018). All
97 participants were Christian, most were lower or middle income, approximately half had a high school
98 education or higher, and they were evenly divided between urban and rural areas. Most were married and all
99 lived with their intimate partners. Nine had received biomedical infertility care. The age range was 21-39
100 (average 33).

101 SH also interviewed five doctors, five nurses, a pharmacist, an herbalist, several parents and Zambian
102 academics; conducted participant-observation at community events and two gynaecology clinics; and
103 contributed to community outreach projects about infertility. Narrative interviews covered topics related to
104 infertility and QoL, including (but not limited to) personal relationships, work, death, living arrangements,
105 medical care, religion, and emotions. Interviews lasted between 30 minutes and 2.5 hours and were recorded
106 with participant permission.

107 This study received ethical clearance from UNZA and the Zambian government. UNZA's ethics committee
108 requires reimbursement of participants for time and transportation; infertile participants in this study were
109 paid 100 kwacha/person (~7 USD). Participants were given contact information and informed how their data
110 would be used, and of their right to withdraw from the study at any time. Consent was reaffirmed before
111 questions about sex. No questions about having children outside the marriage were asked when couples
112 interviewed together. All names and identifying details have been changed[1]. All interviewees gave verbal
113 informed consent for audio recording, except two gynaecologists, who agreed to written notes but not audio
114 recording. Infertile participants signed reimbursement and written informed consent forms. On

[1] In some cases, multiple pseudonyms were used if the details of someone's story could expose their identity. Details were not changed for expert informants.

115 reimbursement records, the study's title was changed to obscure the purpose of interviews, because
116 participants were required to provide identifying details to receive money. By requiring submission of real
117 names to a third party for payment, UNZA's ethical requirements may have prevented complete anonymity.

118 POSITIONALITY

119 SH's positionality in the field impacted many aspects of the research. Her status as a married, childless,
120 female, non-Zambian, educated *mzungu* (white person) all "fashioned the course of this research in particular
121 ways" (Spronk 2012). SH benefitted from this positionality in some ways: several people said they shared
122 things with her they could not tell members of their communities, who might misuse the information or be
123 emotionally invested. Conversely, as an educated white person, SH was seen as a medical expert, though she
124 constantly reiterated that she was not a doctor and could not help people conceive. When asked, she provided
125 referrals to the UTH gynaecology clinic and infertility FAQ sheets by Cardiff University. These often
126 contained more reliable and extensive information than many people could find on their own.

127 RESULTS AND DISCUSSION

128 This section discusses ethnographic evidence for the impact of legacy, family, and solution-seeking on
129 infertile people's quality of life (QoL) through cases chosen from the cohort of participants. These cases were
130 chosen because they clearly or demonstratively express concerns raised by many participants.

131 FERTILITY, DEATH, AND LEGACY

132 Social concerns about death and legacy factor heavily in discussions of infertility in Zambia, where people
133 often die young and unexpectedly. Public health issues like HIV, tuberculosis, and cholera persist (Kapata et
134 al. 2016, UNAIDS 2018) but people also die because of accidents and health conditions that are treatable in
135 wealthier countries. In three months, interlocutors and colleagues cancelled obligations nine times due to a
136 death or hospitalization. Several participants had been widowed multiple times, though the oldest participant
137 was 39. Children are considered the most effective way for families to connect with someone who has passed.

138 As such, primary and secondary infertility impact people differently, especially because parenthood is locally
139 defined as the ability to produce, not raise, children.

140 Nearly every interlocutor worried about death and legacy in relation to infertility. For some infertile
141 participants, this worry manifested in concern about burial rites.

> 142 Let's say if you are married, then you die, how they are going to bury that person is different from
> 143 how they can bury someone who was married and has had kids…They will get maybe an old cob of
> 144 maize and then put on the butt, and for those who have kids, they will just bury them normal. I
> 145 remember an aunty…she had a friend who was old, she was about 50 years old and she never had
> 146 child.… they would just tease and tell her, 'oh you don't have any kids, so when you die, they are
> 147 going to bury you like that.' (Melanie, Lusaka)

> 148 When they bury you, there will be no history. (Miranda, Lusaka)

149 Similarly to women in the Upper Zambezi, childless women in Lusaka demonstrate fear being forgotten by
150 the community after death through their discussion of burial practices (Silva 2009). According to Lauren, an
151 interlocutor from Lusaka who now lives in a rural area, burial rituals involving maize are designed to shame
152 childless women even after death:

> 153 They get a maize cob and they, they, press it on...your anus…Meaning, that is your child....yeah
> 154 (awkward laughter)...it's like, shameful.

155 While this ritual is uncommon in Lusaka, the symbolism of maize and the intensity of burial rites discussions
156 speak to the depth of concern that infertility raises about death in Zambia.

157 Many infertile people mentioned wanting to leave someone behind: Robert fantasized about raising a child
158 with his father's name so that "I would not have to lose the memory of him." A child ensures the surviving
159 wife has permanent ties to the extended family: childless widows in patrilocal marriages often lose rights to
160 land in both their husband's and their home villages(Chapato et al. 2011). Joy, a childless 22-year-old,
161 recounted her panic during her husband's malaria: "What if he dies, who will I be staying with?"

162 Because of high child mortality rates (UNICEF 2018), one child is never considered enough. Nancy, who has
163 a living daughter, but lost her son to sudden illness said, "They will just say you should have not only one
164 child, at least you should have another one." People sometimes used *only* to describe large families (i.e. "we
165 are only six"), as though there could never be enough children. However, Lauren, who has a son, said, "I am
166 not so worried because I know there is someone who carries my blood." One child is still better than none.

167 Having a miscarriage sometimes provided protection from barrenness rumours and engendered sympathy for
168 both men and women.

> 169 If you die without leaving any children, it is like…you vanish. But if you have a miscarriage, it is
> 170 better, at least you are not barren. (Rachel, Lusaka).

> 171 To them, [if your wife miscarries,] then it means you are man enough and you can produce…They
> 172 would say, in Kafue you had girlfriends and we have never heard that you had a child there or
> 173 whatever, or you made a girl pregnant and she aborted because she didn't need the child…Those are
> 174 the words that those who mock me use. (Jacob, Chongwe)

175 In Nyanja, a dominant language in Lusaka, *sama bala* describes the condition of infertility for both genders. It
176 means roughly "he or she does not produce (children)." Even though the experience of infertility is gendered,
177 production of children is not. Becoming (or making someone) pregnant publicly demonstrates that a person
178 can produce children; thus, a miscarriage may improve social status. A lost pregnancy is often mourned like
179 the death of an infant.

180 PRODUCING FOR THE FAMILY

181 Because infertility raises questions of legacy, the extended family is implicated when a couple fails to conceive
182 (Sewpaul 1999); additionally, because early death is common, families have a stake in couples' fertility
183 decisions: "everyone takes over from you when you are incapacitated or when you die" (foster parent,
184 Lusaka). Marriage across vast distances and different lineage systems is common. Matrilineality has been
185 found to be somewhat protective for infertile women elsewhere in SSA (Gerrits 2002), which may be true in

186 Zambia too. Infertile women in matrilocal marriages generally reported higher QoL, particularly in rural areas,
187 than women in patrilocal marriages[2]. This is likely because the husband's family usually puts pressure on the
188 wife to conceive, and women sometimes received emotional support from nearby family members.

189 However, all childless men and women said they could not earn respect traditionally accorded to parents.
190 Many were not considered full adults by their families or communities. Systems of addressing one another, in
191 both workplaces and families, explicitly indicate whether someone has children. In most Zambian cultures,
192 parents are referred to as "Mother of (Child's Name)" or "Father of (Child's Name)" as a form of respect.
193 Robert, who is childless, explained:

> 194 In our culture for you to earn respect is when you have a child. Even my younger siblings do have
> 195 children so they are being much more respected than I am. Even decision-making, they would say: "Call
> 196 *Bashi Nanikani* (Father of Nanikani)." It's a meeting for parents. You are not a parent, so you are not
> 197 eligible to be found in that meeting. It's like they are pulling you down, and your behaviour doesn't
> 198 change because you are like a bachelor… It's quite a heavy load.

199 Whether naming traditions are particularly painful for childless people depends on their ethnic group's
200 tradition, sibling order, and the presence of same-gender siblings or cousins. For example, Amadeo said it
201 hurts that, as the youngest son, his brother's children will never call him "daddy." However, Malaika noted
202 that being called "mom" by a relative's child is not the same as having her own: "I would like someone who
203 just [says] 'Mom!' and they're mine."

204 Infertility can cause people to lose or fail to obtain recognition as an adult man or woman.

> 205 I got my second marriage where I stayed for 7 years, I did not have a child and… [my husband said] I
> 206 am not woman enough and cannot stay in the house, so that was how I was chased again. (Lauren,
> 207 Lusaka)

[2] Some interlocutors in matrilineal communities lived near the husband's family (patrilocal marriage), or the reverse.

208 In this light, it is not surprising that the insults infertile people received were often gendered. Women in SSA
209 are more likely than men to identify as infertile due to false beliefs about women's responsibility for infertility
210 (Hörbst 2010). Several interlocutors who were neither infertile nor medical professionals equated male
211 infertility with impotence and believed men who perform sexually cannot be infertile, a common assumption
212 throughout SSA (James 2019, Dhont et al. 2011, Araoye 2003). In Chongwe, men without children may be
213 mocked more than women; insults focus on their manhood. Peter's friends called him *ngomwa*, which means
214 both barren and impotent. They say he is not "man enough" to get someone pregnant, implying he cannot
215 have sex at all. Mocking impacts men emotionally:

216 > I feel so sad when they say a word like barren. I feel bad because most of my friends have children
217 > and some have got pregnancies…I ask myself questions that I cannot even answer myself… when
218 > they mock, it changes how I feel about it. (Jacob, Chongwe)

219 Some participants protected their spouses from mocking. Leroy's wife does not rebut gossip that she takes
220 birth control because she already has a child and he does not. Jacob protects his wife, who has fibroids, by
221 telling others that either of them could be the problem. However, some men blamed their wives, despite
222 internal doubts about their own fertility:

223 > It hurts me a lot, and I complain and ask myself if I am the one with the problem, or it is her. But I
224 > have just made it like I am perfect and she has a problem. (Gregory, Chongwe)

225 Some infertile people, especially in small communities, continued to hang out with friends who mocked them
226 to salvage long-term social connections. Some women found solace with other infertile women (Faria 2018)
227 either online or in person. Most participants receiving medical care were encouraged to go by friends or
228 family. The chance to talk about infertility motivated several people to agree to an interview. No participants
229 mentioned a mental health practitioner in response to questions about treatment and whether they confided
230 in anyone. Several middle-class and most lower-class participants said SH was the first person who knew
231 about their infertility experience other than family or doctors.

232 ### Intimate Partner Violence

233 Several women in this study cited infertility as the reason their husbands neglected, beaten, and/or raped
234 them. Intimate partner violence is widely accepted as normal or even a sign of love. Interlocutors casually
235 referred to physical abuse and "being forced" to have sex, as though this was expected.

236 Stories of women being "chased from the house" (in which a woman is evicted by her husband and/or his
237 relatives, who bring in a new wife) were only reported in patrilocal marriages. One interlocutor, who lives in a
238 rural area, was chased for failing to bear children, and now has one child with her current husband. Because
239 one child is considered insufficient, her son does not protect her from being chased again if she fails to
240 conceive. Her husband is now depriving her of food, saying, "food is for people who produce [children]."

241 Other projects within this collaboration also found that women feared being chased (James 2019). However,
242 the fear seems more prevalent than actual chasing incidents. Most participants had not personally experienced
243 or witnessed either chasing or pregnancy-achieving cheating. Women likely deal with other forms of violence
244 not covered in interviews; this is a topic for further research.

245 ## SOLUTION-SEEKING CHOICES

246 ### Social Solutions

247 Elsewhere in SSA, men often seek "social solutions" (Hörbst 2009) to infertility by impregnating another
248 woman or finding new wives. Men may do this to avoid paying for female-factor infertility treatment (Hörbst
249 2009; Inhorn 2012). However, in Zambia, few couples have access to treatment or testing. Therefore, both
250 men and women often see divorce or infidelity as the only way for a man to prove his own fertility. Christian
251 denomination did not impact infertile people's consideration of divorce. In fact, several couples were active in
252 different denominations and did not see this as a conflict in their marriages.

253 All men in this study either rejected the idea of fathering a child extramaritally, or felt emotionally conflicted
254 about it:

255 I believe if a man, if he meets a woman, it's final, until death do them apart. (Amadeo, Chongwe)

256 I feel bad because I know it would hurt her. (Gregory, Chongwe)

257 This conflict aligns with Inhorn's findings in Egypt: despite societal ideas that infertility is an "inevitable
258 source of marital distress and eventual divorce…many men's and women's stories suggest otherwise" (Inhorn
259 2012), though barriers to adoption and ARTs exist in both countries[3]. While fears of being chased or cheated
260 on are clearly well-founded for women in Zambia, many men in this study avoided these social solutions.

261 FOSTER CHILDREN

262 Fostering is extremely common in Zambia, particularly among childless couples. In social terms, fostering
263 does not make one a parent: the obligation to demonstrate fertility is not fulfilled by raising the children of
264 others. Biological parenthood is integral to social identity; therefore, adoption is rare, despite relative legal
265 accessibility, because it revokes the social status of any biological parent. Furthermore, many children are
266 raised communally regardless of foster status. Participants discussed biological children, but never foster
267 children, in infertility interviews unless specifically asked. Unsurprisingly, there are strong social norms
268 around acceptable care practices for foster children:

269 I had an opportunity of a scholarship from a school for a child...Then I had no child to give that
270 scholarship to, so I had to put my sister's child on that scholarship. The family of my wife, I don't
271 know if they became jealous of what was happening, [they said], "Why would you be sponsoring
272 another man's child? Why don't you have your own child?" It became like a confusion. It began
273 maybe tempering with my wife's brain, then she started running out on me, she began drinking.
274 (Robert, Chongwe)

275 Robert tried to circumvent social rules within a matrilocal household for a child he loves. He maintains that
276 caring for his foster son "counts" (makes him a father). However, the social consequences of treating a foster
277 child like a biological son were enormous, eventually leading to separation from his wife.

[3] Social/financial in Zambia, legal in Egypt

278 ## Biomedical treatment

279 Accessible biomedical care, especially for non-life-threatening issues like infertility, is often not
280 comprehensive or high-quality. Interestingly, all people who accessed any biomedical infertility care felt
281 overwhelmingly positively about their treatment experience, though only one interlocutor had achieved
282 pregnancy through treatment. Infertile people may feel they have no right to complain after receiving any
283 treatment for a non-life-threatening problem.

284 However, many people avoid medical treatment, especially for sexually-coded (and thus, morally-charged)
285 issues like STIs or abortion (including an infertile interlocutor married to a doctor). Even at public hospitals,
286 the cost of a consultation (~50 kwacha) can be insurmountable[4], especially factoring in transportation costs.
287 The problem has often become much more serious, several Lusaka gynaecologists noted, by the time
288 someone accesses care. Adding complication, outdated or medically-questionable practices can cause
289 infections, making it even harder to get pregnant (Gerrits & Shaw 2010).

290 Many people, including some healthcare providers, seem to have limited understanding of biological fertility.
291 Three trainee nurses cited fear of infertility as the reason they personally refuse to use hormonal
292 contraception. Several interlocutors in long-distance marriages had few days together each month. When
293 together, they had sex frequently, up to seven times per day, hoping that more sex would help them conceive.
294 Having so much sex without getting pregnant seemed to confirm participants' fears, even though it is unlikely
295 they had sex within the woman's fertile window. Several participants may not have biomedical fertility
296 problems, just poor timing.

297 Even with access to high-quality care, men may refuse diagnosis to avoid "proving" their infertility (Hörbst
298 2010). To mitigate this, UTH and Lusaka IVF require women to bring their husbands for male-factor
299 infertility testing, but many husbands refuse to go. Unlike UTH Gynaecology, Lusaka IVF, the only IVF

[4] 50 Zambian kwacha ≈ 3.50 USD. Minimum wage ≈30 USD/month. A living wage is 184 USD (Koyi 2019). Many interlocutors were unemployed or worked informally for less than minimum wage. 60% of people in Zambia cannot meet basic needs (ZDHS 2014).

300 clinic in Zambia, is highly visible as a fertility clinic, so there can be no pretence about why someone is there.
301 The doctor asks men who refuse to come in for testing to send a semen sample with their wives.

302 At least one male interlocutor wanted to go for medical treatment, but his wife refused, to avoid diagnosis.
303 However, traditional ideas about women's responsibility for infertility and infertility as divine punishment
304 generally prevent both genders from disclosing their situation or seeking help for (justified) fear of judgment,
305 ridicule, and status or material loss.

306 SPIRITUALITY

307 Zambia identifies as a "Christian nation" (Constitution of Zambia, 1991); religion plays an enormous role in
308 people's lives. Most people attend church regularly; many spend their only day off in all-day services.
309 Globally, people often draw "on religious as well as medical discourse to frame their experiences of and
310 approaches to infertility" (Jennings 2010). All infertile participants proclaimed their Christianity and saw
311 children as a blessing from God. Many found comfort in prayer and the biblical story of Sarah giving birth in
312 old age.

313 Like many from Abrahamic religious traditions, infertile people in Zambia often "experience infertility as a
314 faith crisis: Why is God doing this? What have I done to deserve this from God?" (Dutney 2007). This soul-
315 searching happens at the community level too: women reported that others often looked for moral reasons
316 for their infertility, including using birth control before marriage, past abortions, or acting "like a prostitute"
317 (Prudence and Daniel, Chongwe). According to local health professionals, STIs and infections from unsafe
318 abortions are common, resulting in a conflation of biomedicine and God's will in the social meaning of
319 infertility.

320 Generally, discussing faith seemed to lighten infertile people's moods—they sat up straighter and their faces
321 became more serene. For some, especially infertile women accused of un-Christian behaviour, being assumed
322 to be a good Christian by an authority like a researcher may have been emotionally supportive.

323 Interactions between the church and traditional cultural practices are "slowly leading to the Christianization
324 of traditional rituals" (Rasing 1995). Christianity and traditional beliefs in urban and semi-rural Zambia are
325 not mutually exclusive. Participants' treatment narratives usually referenced spiritual forces, which they
326 believed influenced treatment outcomes. Interactions with traditional healers (*ngangas*) are particularly
327 revealing. Four infertile participants confirmed they had visited a traditional healer for infertility. They said
328 they were given herbs or plants to ingest or carry with them, rather than spells. However, more participants
329 have likely used a *nganga's* services (including spells), because seeing a *nganga* is stigmatized; clients risk
330 accusations of practicing witchcraft by seeking services. Which services are acceptable appears to be quite
331 personal: some refuse to visit a *nganga* "because I am a Christian," while others see no conflict, and a third
332 group would only use medicine (herbs) not spells. However, witchcraft is part of everyday life in Zambia and
333 some participants feared someone had cast a spell that made them infertile.

334 The biomedical and the spiritual are often entangled. Traditional healers address both medical (i.e. hormone
335 imbalances) and spiritual (i.e. evil relatives) fertility problems. Furthermore, biomedical problems are often
336 attributed to spiritual causes. For example, an interlocutor ascribed a post-C-Section infection to "the devil,"
337 not biomedical failures. Outside Zambia, infertile people justify fertility treatment outcomes as "God's will"
338 (Jennings 2010). However, participants in Zambia seemed to see Christian belief as the solution and
339 biomedicine as the possible miracle, rather than the reverse. One participant talked herself out of "leaving it
340 up to God" to fully engage with biomedicine: "I understand these things are science...I do pray for a baby,
341 but I understand most of the work has be done by me."

342 CONCLUSION

343 Infertility in Zambia remains socially taboo and under-researched, with few biomedical treatment options
344 available. Conceptualizations of death and legacy, family and gender, and biomedicine and religion all
345 contribute to the meanings of infertility. Infertility challenges people's understandings of their purpose in life,
346 their identity and relationships, and their faith in both God and medicine. The experience of infertility

347 negatively impacts quality of life by disrupting infertile people's core beliefs about their identity and place in
348 their community. Social structures, local understandings of infertility, and traditions can exacerbate an
349 already-difficult period for infertile, and particularly childless, men and women. Infertility affects both genders
350 but differently: men often experience more mocking, and women may experience significant material,
351 physical, and emotional abuse.

352 Due to the COVID-19 pandemic, examining the meanings of infertility in relation to death has acquired new
353 importance. The constant presence of death in daily life in Zambia makes legacy a primary concern. Children
354 are often the only way avoid "leaving nothing behind" (Melanie, Lusaka). Expecting death changes how
355 people approach medical care: care for the soul is often given priority over care of the body. These meanings
356 could become stronger in Zambia during the pandemic, and in other countries with high COVID-19 death
357 tolls.

358 LIMITATIONS

359 This study is biased towards infertile people seeking medical treatment. The women interviewed who were in
360 treatment all had husbands who had been tested. All men interviewed desired medical treatment. Infertile
361 people participating in research may be more willing to take social risks to resolve fertility problems, may have
362 more supportive partners, and/or may be less influenced by cultural notions of women's responsibility for
363 infertility and gender roles (Gerrits 2018). Further research is necessary to understand experiences beyond
364 this limited cohort. Interruptions prevented complete privacy during interviews, even in closed rooms or
365 behind curtains in patient consultation areas at UTH. However, no participants seemed uncomfortable unless
366 interviewed with their spouse (Gerrits 2018). Nonetheless, lack of complete privacy likely impacted some
367 responses.

368 POLICY & RECOMMENDATIONS

369 The Deans of Research and Medicine at UNZA and Heads of Obstetrics and Gynaecology at UTH required
370 Zambia-specific data to support (and justify) investment in a Ministry of Health-based infertility research

371 group; this study contributes QoL data for infertile people. A forthcoming policy brief informed by our
372 findings discusses how and whether to develop this initiative. Infertility prevalence represents a particularly
373 important area for further research.

374 Basic infertility education would improve understanding of biological fertility among lay people and
375 professionals and dispel myths. Curricula should include information about who can be infertile, biomedical
376 causes of infertility, and acknowledgement of infertile people's social/emotional suffering. Effective
377 education can be spontaneous and informal. During an improvised infertility play informed by this study
378 produce by local NGO Kingdom Culture in a Lusaka township, the audience gasped audibly when the actors
379 revealed the husband was infertile; several people immediately asked the director if this was possible. He
380 referred them to UTH: they had not realized infertility can be treated medically.

381 Other than increasing healthcare access, QoL for infertile people may be improved by reframing public
382 discussions of fostering. Recognizing foster and biological parenthood as equally important could give
383 infertile couples some social relief and neglected children more secure homes.

384 Finally, stigma cannot be broken in silence. Healthcare policies and education should increase discussion of
385 infertility without shaming infertile people. Men may have more power in their communities; their
386 experiences must be included. Enforcing domestic violence laws and property rights would ease infertility
387 consequences that affect women disproportionately.

388 WORD COUNT: 5018

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