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Professional competition amidst intractable maternal mortality: Midwifery in rural Pakistan during the COVID-19 pandemic

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ABSTRACT

Low-income countries with intransigent maternal mortality rates often follow WHO guidelines that prioritize access to skilled, or professionalized, prenatal and birthing care. Yet the impact of these initiatives in areas still suffering high maternal mortality is opaque. Despite heavy and long investments, the professionalization of midwifery in Pakistan is incomplete, and declines in maternal mortality have plateaued. Traditional midwives have lost status, but they continue to see clients and have influence in their rural communities. We conducted a rapid ethnography among traditional midwives (Dais) and trained Lady Health Workers (LHWs) in two communities of Attock, Pakistan from May to July of 2020. Our findings underscore the importance of long-term presence and trust to maternal care, especially in conditions of resource scarcity or fear (e.g., fear of COVID). We provide evidence of overt disparagement of Dais by LHWs; (2) illustration of the conflicts between gender norms and biomedical priorities of hospitalized births; and (3) exacerbated fear of hospitals during COVID, which served to highlight the advantages of Dai care. Professionalization programs for midwifery must include structures and training to ensure collaborative communications across the country's midwives. Failure to respect the rational decisions of traditional midwives and their patients in circumstances of scarcity, high stress, and isolation only ignores the material and cultural conditions of these vulnerable communities.

1. Introduction

Reducing maternal mortality rates is a priority for many low income countries, urged by the W.H.O. since the 1978 Alma Ata Declaration (see alsoWorld HealthOrganization, 1978, 19,926) and supported through billions in international funding (Lawn et al., 2008). In 2010, Pakistan aimed to reduce its maternal mortality rate from 276 to 140 deaths per 100,000 live births within 5 years, or by 2015 (Mahmud et al.). Pakistan's strategy was multi-pronged and included various programs to improve the quality and availability of health care and family planning services in rural and slum areas (Zulliger, 2017). One of these was the Lady Health Worker (LHW) Programme, through which more than 125,000 women have been trained since 1994. Yet despite these investments, the 2015 goal was not met. Indeed, even the 2019 maternal mortality survey reported rates around 186 deaths per 100,000 live births (Hanif et al., 2021; (NIPS) and (ICF) 2020).

Experts struggling with intransigent maternal mortality rates in low-income countries prioritize access to prenatal and birthing care (Shiffman and Smith, 2007; Shiffman, 2000; Prata et al., 2010). Correspondingly, the first strategy of the W.H.O. is to expand access to "professional" maternal healthcare (Organization 2017a). The impact of these initiatives to transform a landscape of traditional midwifery into a professional model that follows predominantly biomedical strategies, is opaque. In areas where maternal healthcare resources are limited (in quality or access), traditional practitioners of maternal care remain an important source of specialized to pregnant women (Mumtaz et al., 2013a, 2013b; Mumtaz et al., 2014). Nowhere is this more clear than in Pakistan, where despite heavy and long investments, professionalization of midwifery is "incomplete" (Price, 2014; Organization 2017b), declines in maternal mortality have plateaued (Aziz et al., 2020), and LHW's face not only physical-geographical but certain social-geographical barriers to completing their work (Mumtaz et al., 2003; Mumtaz et al., 2013a, 2013b).

Professionalization of midwifery in Pakistan has increased competition between traditional and professionalized midwives. And as competition between sources for maternal care has grown, traditional midwives have lost clients and status (Sarfraz and Hamid, 2014). How this competition is perceived and practiced by midwives themselves is

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not well understood. Furthermore, the COVID pandemic has tested the maternal care system in ways that highlight the differences between traditional and professional maternal care specialists in Pakistan. In particular, the impacts of competition in rural areas, where resources are more limited and awareness and utilization of maternal care is lowest (UNFPA, 2019; Mumtaz et al., 2014) may impact these two groups differently.

To better understand Pakistan's deeply invested but slow progress on maternal mortality rates, and to consider what lessons may be drawn from midwives themselves, we studied and compared the perspective of both types of midwives, Dais and LHWs. We explored their perspectives on work during the COVID pandemic, their attitudes toward each other, and their sense of midwifery practice and competition in the district of Attock, a culturally diverse area in northeastern Punjab province (Punjab, 2016a). We used qualitative research strategies including native-researcher immersion, long-term relationships in the area, recorded interviews, and extended observation periods (beyond the recorded interviews) to probe the experiences and narratives of midwives themselves on the topic of professional competition. Although our data collection period was brief, we were able to gather perspectives amidst the pandemic, and our research methods were built in collaborative conversation with local medical and midwifery practitioners to address a fairly targeted set of questions (Sangaramoorthy and Kroeger, 2020; Vindrola-Padros and Cecilia, 2021). Our research therefore captured the perspectives of midwives during a period of particular stress, both for midwives and their patients.

2. Background

The WHO supports the identification and training of local, influential women who can integrate biomedical knowledge into their practice and act as channels to educate women in rural areas about aspects of birth and maternal/child health (Bhutta et al., 2008). Theoretically, this agenda would reduce competition between old and new, and instead foster simultaneous and collaborative sharing of knowledge through the voluntary uptake of new practices by an existing system of care specialists. These strategies aim to address health disparities while strengthening a weak primary health care system, such as the one that exists in Pakistan. There, urban women are almost twice as likely (48%) than rural women (20%) to seek antenatal care (Mahmud et al., 2011b). Yet progress toward these goals has been uneven.

The first government-sponsored program for community-based midwives in Pakistan was introduced in the 1950s (Mahmud et al. 2011a, 2011b). These women worked through regional health centers, assisting physicians at the district hospitals (Ariff et al., 2010). Their importance diminished in the 1970s, as training efforts focused on physicians (Mahmud et al., 2011a). But by 1994, the quality of midwifery care was again made a priority and the Lady Health Worker Programme enacted (ul Husnain et al., 2018). Lady Health Workers (LHWs) provide antenatal care, immunization services, and family planning services via household visits across a catchment of 10–20,000 people (Arif, Shabina et al.). A more targeted effort to train community midwives was introduced in 2006, supplementing the existing LHW Programme. This more recent drive has been described as an effort to replace the untrained, traditional midwives rather than cooperate with them (Brückmann et al., 2019).

Thus, Pakistan's experience mirrors a pattern in which states, following guidelines to increase and professionalize maternal health care, enter a period of increased competition between historic practitioners and new ones typically trained in biomedical practices. Where professionalism is "complete" (Sena, 2017), historic systems of knowledge are marginalized or lost. But social scientific and public health researchers have repeatedly shown the failures of these strategies in remote and rural settings (Chapman, 2003, 2006; Hyde and Roche-Reid, 2004; Dawson et al., 2014; Ayala et al., 2015). Such a context of competition exists in Pakistan between traditional Dais and the government trained Lady Healthcare Workers, referred to collectively here as LHWs. Because of the long history of government-sponsored training initiatives in Pakistan, many Dais have completed some hospital trainings and there are hospital-trained ("certified") midwives who are neither Dais nor LHWs. We oversimplify the complexity of women's care-giving strategies in this article in order to focus on differences between government-paid LHW's and locally hired Dais. (For further information on the continuum of midwifery practitioners, see Mumtaz et al., 2013a, 2013b, 2021ud Din, Jabeen, and Meer; Davis-Floyd, 2001; Hsu, 2001).

Dais remain an essential part of maternal care in rural areas of Pakistan, but belong to the lowest and poorest segment of the social hierarchy. A number of studies in childbirth have examined attitudes toward midwives due to their responsibility for containing and cleaning the dangerous and powerful substances surrounding birth (Kirkham, 2007; Swanson, 1968; Berry, 2006; MacDonald, 2004; Kirsis, 1996; Kaspin, 1996). Anthropologist Mary Douglas' sentinel work on ritual pollution (1966: 95–114) and social order emphasized the role of religious values in controlling societal actors. For example, in Kirkham's South Asian study, the fathers were not eager to touch their baby until it had been wiped clean from the mother's bodily secretions (2007). Jeffery et al. describes home births in Northern India as "unhygienic" and Dais services as "dangerous" (1984). For example, the umbilical cord is cut with unsanitary tools, wounds dressed with a mixture of earth and cow dung, and vaginal examinations done without washing hands (Rosario, 1995). Kirkham described how negative opinions of Dais surged in Pakistan after a few women were admitted to hospitals with complications like a bruised vulva, fetal mortality and obstructed labor (Kirkham, 2007:211). Yet Dais do their work in the midst of family and community dynamics, not separated from them. Dais do not have, and may not always seek, complete authority over birthing care. Also, Dais do not provide antenatal care or screenings for possible complications, but are instead locally trusted, and closely available sources of knowledge, support, and resources.

LHWs, on the other hand, receive 15 months of government-sponsored training which involves 3 months of classroom instruction and 12 months on-the-job training (Douthwaite and Ward, 2005). That training does not include obstetrics or deliveries, since LHWs work closely with medical staff at basic health units or rural health centers who perform that work (Douthwaite and Ward, 2005). Instead, LHWs focus on antenatal care, contraceptive advice, and immunization services. The availability of certified midwives or doctors to whom LHWs can refer their patients, while better since a 2006 governmental certification program was initiated, remains low (Mumtaz et al., 2015). Thus, while LHWs have expanded the presence of health care in rural areas, resources for prenatal and childbirth services are still largely tied to health center-based deliveries.

Dais in Attock obtain training either traditionally by working alongside other Dais for between 6 months and 3 years. LHWs, on the other hand, obtain their training exclusively from the regional health center, a program that consists of 3 months of in-class training and 7 months of on-site rotations. Each LHW is responsible for more than 250 houses and visit 10–15 houses per day (according to informant report) and operates with support from the regional health center. The material differences between Dais and LHWs, therefore, have mainly to do with the location of childbirth and the technology and resources (including medicines) available for prenatal and birthing care. Both take pride in the care they provide, in adapting their recommendations to the financial circumstances of their patients, both are concerned with clean and safe procedures, and both make at least some use of referrals to the regional health centers. It might seem, from this perspective, that traditional Dais and government-trained LHWs might peacefully co-exist in a maternal care landscape, each group filling fairly separate niches, cooperatively pursuing an overall reduction in Pakistan's maternal morbidity rates. But as key social scientific literatures reveal (Mumtaz and Salway, 2009, 2005; Towghi, 2004, 2018; Mumtaz et al., 2013a,

2013b), the semiotic value of birthing mothers in rural Pakistan is simply too great to go uncontested, and multiple actors both in and outside of Pakistan have an agenda for these midwives (Mumtaz et al., 2013a, 2013b).

Numerous scholars have found that when professionalization of midwifery occurs, a hierarchy among occupational groups arises (Goodman et al., 2004; Benoit et al., 2005; Logsdon and Smith-Morris, 2017; Neiterman and Bourgeault, 2015; Price, 2014). Midwives are often assigned minor tasks within obstetrical spaces, and community-based care relegated an even lower status (Willis, 1989; Goodman, 2007; Bogdan-Lovis and Aron, 2006; Smith-Morris, 2005). And the introduction of new technology to prenatal and birthing care fragments the relationally delicate care of midwives, reducing that process to market choices (Benoit et al., 2005).

Yet the strengths of community-based midwives ensure that they can be more sensitive to community- and family-priorities, more agile in achieving best care around local restrictions, and have resilient reputations owing to their long-term relationships in local settings (see e.g., Mumtaz and Salway, 2009; Logsdon and Smith-Morris, 2017). These strengths only become more urgent during crises like infectious disease pandemics or periods of resource precarity (Zaidi and Smith-Morris, 2015). Correspondingly, the value of privacy and home-based aspects of Dais' care may have risen during COVID. And so, despite high government pressures on Dais (for professionalization) and on women (for hospitalized births),long-standing cultural and religious ideals continue to conflict with medical models of hospital-based prenatal and birthing care (see also Mumtaz et al., 2009).

The continued competition between traditional and professional maternal care is evident in key Pakistani metrics. A majority of births in Pakistan (an estimated 69.3%) are now attended by skilled birth attendants (World Health 2015) and 40–60% of Pakistani women aged 15–49 are attended by any provider at least four times during pregnancy (UNICEF, 2022). Yet with approximately 78,000 midwives (UNFPA, 2019) and more than 125,000 LHWs (Adil, 2018) working full-time in maternal care, Pakistan's maternal mortality rate is still high. Acknowledging weaknesses in Pakistan's vital statistics system (Aziz et al., 2020), the World Bank's model for 2020 maternal mortality is an optimistic 140 per 100,000 live births (World Health 2015).

Finally, the COVID pandemic produced particular types of stress on rural healthcare during our research. At the time of data gathering, there were approximately 4 cases per 1000 people and the recovery rate was 97.58% (Pakistan). Although multiple waves of infection have since occurred, Pakistan has followed global patterns in the use of general lockdowns, governmental education and vaccine campaigns, broad vaccination campaigns, and periodic closures or restricted access to the regional hospitals. Pakistan has also experienced great economic losses, unemployment, and related population precarity typical of many low-middle income countries. However, Rasheed reported that a combination of rapid lockdown, the relative youth of the Pakistani population, and "widespread herd immunity" have all contributed to Pakistan's ability to cope during this crisis (Rasheed et al., 2021; see also Siddiqui, 2022; Malik et al., 2020). We were most interested in the impact on maternal health care in rural areas, and the roel that fear of COVID might have played in the midwifery profession. We predicted that the conditions of hardship and fear brought on by the pandemic would be evident in our findings, not only because of the predictable COVID-related challenges to maternal healthcare, but because of the characteristic differences between Dais and professionalized midwifery practices discussed above. Our findings affirm Towghi (2004) in showing that Dais fill crucial and resilient roles within their communities that better align with local priorities and gender norms.

To better understand the views of Dais and LHWs on these issues, we asked, How do midwives experience professional competition in areas where the professionalization of maternal care is incomplete? Why do communities with intransigent maternal mortality rates continue to utilize traditional midwives? And what impact do the additional fears and stresses of the COVID pandemic have on this competition? Following Benoit et al. (2005), we recognize the landscape of maternity services in any given locale to be a product of state interests, professional boundary struggles, and the changing interests of birthing women and their families. Our research therefore examined the crucial and divergent roles played by Dais and LHWs in the context of both high maternal morbidity and mortality and a COVID pandemic.

3. Methods

Research involved in-clinic and in-community shadowing, interviews with 15 Dais and 14 LHWs, plus observation in maternal care units in two different, rural catchment areas of Attock, Pakistan. On-site observations and interviews spanned an 8-weeks period during June to August of 2020. Informal conversations were held with the following key informants (Tremblay, 1957); one doctor; 2 LHW supervisors; and 5 members of Dais' families. Attock is the sixth most populated district in the country, with approximately 20% of its 1.2 million residents living in rural areas (Punjab 2016b). Siddiqui, a native but non-resident of this region, conducted all interviews. She is proficient in Urdu, the prominent language, and employed translators as necessary for Punjabi. Through family connections with several Dais in the Attock district, as well as with a physician at one regional hospital, we were able to pilot test the interview questions, make initial inquiries about professional practices and competition, and establish recruitment and observation protocols for the study before data collection began. These family members also helped with recruitment of both Dais and LHWs. Although Siddiquiis neither a Dai nor LHW, she gained a relatively high level of access and trust among participants through her own and her family's networks in this setting.

Local supervision of the research was provided by Dr. Salma Saleem of the Thalassaemia Society of Pakistan, which has an LHW training site in Attock and thereby supported our recruitment of LHWs in the area. LHWs were also recruited by obtaining permission from the regional CEO of the Punjab Health Department in Attock city. All LHW participants were sent by the Health Department to be interviewed. All Dais were recruited by word of mouth as Siddiqui lived among and shadowed maternity care professionals within rural areas of Attock district. Interviews occurred in sites chosen by the participants, and Siddiqui's family home was also used as an interview site.

Qualitative methods included shadowing and conversation with key informants listed above and with LHW Supervisors in Akhori and Haji Shah, two regions within Attock district. Regional hospitals were closed due to the pandemic during the on-site data gathering period, and this circumstance impacted both our conduct the study and the subjects of the study.

A total of 29 women (15 Dais, 14 LHWs) provided recorded, semi-structured interviews. Interview prompts are shown in Tables 1 and 2. contains demographic details on the sample. Dai participants ranged in age from 30 to 75 years. Interview questions addressed generation and experience, place and length of training, the resources used in their practice, constraints within their practice, government support, safety measures used, perceptions of stigma toward their role, patient/client changes related to COVID-19, and the impact of COVID on their practice. Interviews ranged from 15 min to almost an hour, and averaged 30 min each. Results are briefly summarized in Tables 3 and 4.

One important and revealing contextual detail was that we were not allowed to interview LHWs alone. Their state-appointed supervisor accompanied them during interviews. After every response, LHWs looked to their supervisor for approval. We also noted that LHWs, while conversing with their supervisor, regularly had their head down. They would run, not walk, to get anything the supervisor requested. LHWs sat and stood according to the supervisor's command as well. We observed the LHW supervisor, in turn, to be strict towards her supervisees and to show clear annoyance when LHWs gave an answer during interviews that she didn't expect. This overt power dynamic suggests the

Table 1
Interview guide.

Interview Guide
General Questions:
1. What would you say are the most important things about your approach to caring for your patients? What values are central to your practice?
2. How do you gain the patient's trust during your visit? What are some common scares that patients experience during pregnancy?
3. How much time do you spend on each patient (on average)? Has this changed since the pandemic?
4. Have your recent patients shown more fear with- in hospital or traditional births since the pandemic? Why or why not?
5. Relating specifically to COVID:
a) Ex: Do you think masks are important? What is your outlook on the vaccine?
b) Has the pandemic changed people's preference in the type of care they wish to receive?
c) Has the pandemic limited your practice regarding patient care in any way?
d) What are the motivating factors behind the increase or decrease of home births during this time?
6. Have you noticed a change in patient behavior since the pandemic?
Dais:
1. Do you consider yourself to be fully integrated in the maternal healthcare system in Pakistan?
2. Have you consulted with any hospitals or organization/received any training in order to safely practice during COVID-19?
3. Do you consider your practice to be safer than outpatient hospital care?
LHWs:
1. Have government policies regarding LHW care changed since the pandemic began?
2. What new COVID safety practices are you required to embed in your practice?

Table 2
Demographics of participants within attock district.

Profession	Akhori	Haji Shah	Attock City	Hazro	Dhok Fateh
LHW	8	6	0	0	0
Dai	1	0	11	1	2

Table 3
Questionnaire results- Dai.

ID	Length of Training	Fear shown by Patients	Belief in Vaccine	Take to Hospitals Amid Complications	Wore Masks	Mentioned Allah
1	1 year	Y	Y	Y	N	Y
2	2 years	Y	Y	Y	N	Y
3	–	Y	Y	Y	N	Y
4	6 months	Y	Y	Y	N	Y
5	3 months	Y	Y	Y	N	Y
6	3 year	Y	N	N	N	Y
7	6 month	Y	N	Y	N	Y
8	1 year	Y	Y	Y	N	Y
9	–	Y	N	Y	N	Y
10	3 years	Y	Y	Y	N	Y
11	1 year	Y	Y	Y	N	Y
12	1 year	Y	Y	N	N	Y
13	1 year 3 months	Y	Y	Y	N	Y
14	6 months	Y	Y	Y	N	Y
15	–	Y	Y	Y	N	Y

seriousness with which these women approached their profession and each other. However, we are also certain that it precluded free responses by the LHWs during our interviews. So, while their responses may speak reliably to the priorities of the LHW Programme, we have no faith in them as reflections of the LHW's personal opinions.

3.1. Sample

Most of the Dais in our study (8 of the 13 Dais) were 1st generation Dais who obtained their training from regional civil hospitals, under the government certification program. The remaining 5 had learned by shadowing another Dai (n = 1) or doctor (n = 2), or by working at a Lady Health Visitor center (n = 2). Thus, even within our sample, the differences were blurred between traditionally trained Dais and those who had participated in some portion of the government professionalization programs. For all Dais, however, their practice takes place within households, either those of their patients or in their own homes. Dais reported checking for child position, fetal heartbeat, anemia, blood pressure, and unusual/excessive bleeding before childbirth in their patients. Thread, scissors, and sanitation products are the minimal tools used for deliveries, sterilizing them by either boiling or by *spirit* (alcohol). Herbal supplements, such as Vermicelli, Turmeric, Ghee, milk, were used to make contractions less painful. Green tea was used to control high blood pressure, and Ghee or castor oil was used to release constipation. Dais also reported (variously): stitching vaginal tears; using injections of Syntomax (to induce labor), NexGen (to reduce pain), and Methergine (to prevent or treat uterine bleeding); and providing Netrogen pills (for uterine bleeding) and Pyodine (topical iodine). Dais reported referring their patients to regional health centers when emergency or specialized care beyond their capabilities to handle was needed.

During their visits, LHWs examined women for fetal position and health of fetus and mother, as Dais did, but if any abnormalities were present, LHWs took their patients to a physician at the regional health center, using a free ambulance if necessary. Through the health center, LHWs also had a reliable supply of gas, AC, and water - resources not always present in rural homes. The regional health centers have an emergency room, an outpatient department, and birthing rooms. Finally, LHWs also engage in efforts to educate the community about health issues via monthly meetings with Sheikhs, school teachers, and community members. More is said about this below.

3.2. Interviews

Recorded interviews were translated and transcribed, then coded and analyzed using Dedoose software for narrative data analysis by both authors (SocioCultural Research Consultants 2016). An initial codebook was developed based on review of existing literature and pilot conversations with key informants. Coding was then performed in two steps by both authors, led by Smith-Morris who has extensive experience in qualitative data analysis. First, two interviews were selected and independently coded using open coding and application of codebook terms. Discrepancies in the coding of the first two transcripts were then discussed and resolved through consensus, with adjustments and additions made to the codebook as necessary. Second, a third interview was coded and these excerpts used to test for inter-rater reliability. Authors achieved an inter-rater reliability score of 0.88 before fully coding the data set. To promote reliability of coding and for discussion of inductive, contextualized, and emergent themes, the authors again discussed both codes and disagreements to consensus after the 10th and after the 29th transcripts.

Themes were identified as follows: inductively through consideration of context (i.e., notes from observations) and ideas drawn from the published literature; deductively through analysis of code frequency, recurrence, co-occurrences, and distribution across the data set; interpretive analysis of metaphors, speech patterns, and other interlocutor choices that were evident *in situ* (during interviews and recorded in researcher notes) or in the transcripts; and consideration of exceptional cases for their implications to the data set. All emergent ideas were considered between the two authors, but only the well-triangulated themes are reported here.

Table 4
Questionnaire results- LHW.

ID	Length of Training	Fear shown by Patients	Belief in Vaccine	Take to Hospitals Amid Complications	Wore Masks	Mentioned Allah
1A	3 month in class, 7 month rotations	Y	Y	Y	N	N
2A	3 month in class, 7 month rotations	Y	Y	Y	Y	N
3A	3 month in class, 7 month rotations	Y	Y	Y	N	N
4A	2 years	Y	Y	Y	Y	Y
5A	3 month in class, 7 month rotations	Y	Y	Y	N	N
6A	3 month in class, 7 month rotations	Y	Y	Y	N	N
7A	3 month in class, 7 month rotations	Y	Y	Y	Y	N
8A	3 month in class, 7 month rotations	Y	Y	Y	Y	N
9A	1 year, 6 months	Y	Y	Y	Y	Y
10A	3 month in class, 7 month rotations	Y	Y	Y	Y	N
11A	1 year, 6 months	Y	Y	Y	Y	N
12A	3 month in class, 7 month rotations	Y	Y	Y	N	Y
13A	3 month in class, 7 month rotations	Y	Y	Y	N	
14A	3 month in class, 7 month rotations	Y	Y	Y	N	N

3.3. Human Subjects review

The study protocol was approved by the Institutional Review Board of Southern Methodist University and written informed consent was obtained from all participants. COVID safety protocols were followed during in-person research.

4. Findings

The professionalization of maternal healthcare is occurring within a complex symbolic context in Attock, Pakistan. We present our findings in three parts: (1) evidence on the context of professional competition and disparagement between these two groups; (2) narratives on the cultural and religious values impacting preferences for maternity care; and (3) relevant contextual and narrative evidence specific to COVID-19 protocols and impacts on maternal healthcare.

4.1. Professional competition and disparagement

Our conversations suggest a recent decrease in Dais' reputation in rural Attock. The increase in the number of regional healthcare centers in the area has certainly increased the availability of maternal healthcare services competing with Dais for clientele. But if a recent decrease in Dais reputation has occurred, it is, according to the Dais with whom we spoke, due to LHWs actively telling community members to avoid or distrust Dais. Correspondingly, all (n = 14) LHWs explicitly and strongly criticized Dai care for their lack of resources and training, the "unsanitary" conditions of home-based care, and their inability to care for complicated cases.

By using their platform to actively educate against Dais, LHWs have contributed to stigma surrounding Dai practice, in hopes of turning women towards the regional healthcare center for healthcare. We heard these narratives plainly. Aaliyah (all names are pseudonyms), an LHW claimed, "How would they (Dais) know what to do if the mother bleeds out or stops breathing? They don't have any training." Other LHWs expressed how home births and lack of proper sanitization products could harm patients. Nine LHWs said that Dais took on cases that were too complicated. And although we viewed LHWs reports as biased toward Programme or supervisors' directives (for reasons noted in the Methods section), those reports were repeated in communities. Yet, we learned that regular trainings of LHWs were not held as planned, that medications and supplies were limited, and there was no system for monitoring and improving performance. Quarterly review meetings between provinces and federal level had also been suspended (Management Oxford Policy, 2019). Thus, in addition to challenges in lack of supplies or training, LHWs are of little direct help for those wishing to birth in their homes. Home births remain a niche filled only by Dais, and epistemologically refused by biomedicine.

Dais defend their practice as "absolutely sanitary", as when Shazia said,

> My practice is absolutely sanitary. We use a *charpai* (woven bed) for deliveries. We place two sheets over it. We pray and read the Quran in the same room. That's how clean it is.

But two Dais conceded that some Dais had made life-threatening mistakes:

> Zoya: A lot of Dais have messed up a lot of cases.
>
> Khadija: They take up very complicated cases, don't sanitize their equipment, have the patient in pain for too long and that causes complications. Some don't sanitize their needles, and hepatitis is a major concern here. This scares people.

Dais challenge this stigma by highlighting the importance of female relatives in the care of women in labor, and the local value systems that restricts women from birthing away from home, or among strangers. Yet the occurrence and negative impact of disparaging comments by LHWs was clear.

4.2. Conflicting values in healthcare

Both LHWs and Dais acknowledge the large role of cultural beliefs and norms in maternity care, and therefore worked hard to gain their patients' trust. For example, the five pillars of Islam – profession of faith, prayer, alms, fasting, and pilgrimage – have pervasive influence in this region. All of the Dais (n = 15) and 4 of the LHWs named Allah, His protection and wisdom, throughout their interviews. The phrase "Allah knows best" was mentioned 17 times across 29 interviews. Islam certainly influenced participants' and patients' views of health and healthcare. However, faithful Islamic practice was challenged during COVID by the state's closure of mosques, the forbidding of personal prayer rugs in the mosque, and restrictions on social gatherings for religious holidays (Piwko, 2021). When COVID-19 protocols interfere with Islamic practices, it can cause doubt in those protocols, as one Shi'ite man in Piwko's study explained: "I know that you can get infected with the virus, but I want to pray in a mosque, listen to *Jumaa Khutbah* [Friday sermon and prayers], and we were forbidden to do so. I do not understand this decision" (2021: 3297).

Similarly, the practice of *purdah*, or separation of the sexes, in Attock restricted local women's ability to visit the district hospital, since male doctors are present there.

> Zeenat: "There is strict regulation of *purdah*. There are families who don't want their wives checked by males. In hospitals, both male & female doctors work, so they don't let their wives go there."

Khan's study, which addressed gender-based restriction of movement, also cited religious proscriptions that impacted women's movements (Khan, 1999). If pelvic examination is allowed under *purdah, a*

chaddar (large cloth) or *burqa (*a black dress fully covering the woman from head to foot) is worn during examination. A lack of female doctors in rural areas means that only those who can travel will receive care from a doctor. Frequent visitations to a doctor arouse suspicion over the woman's character (Khan, 1999), which can ruin the family's *izzat*, or honor. *Izzat* signifies "a girl's virginity, a woman's protection from forbidden sexual contact, a good reputation for the family, and the pride and good name of the person, family or community" (Khan, 1999: 42). Women's lack of decision making power and education, their restricted mobility, and their lack of access to healthcare resources in Attock, while varied (Mumtaz and Salway, 2009; Mumtaz et al., 2015) all contribute to gaps in prenatal and birthing care, much like women in other rural areas around the world (Lazarus, 1994).

Only LHWs expressed *purdah* as a barrier to their giving care, when patients' husbands or in-laws would not allow a new or unfamiliar LHW into the house. Even so, all LHWs (n = 14) reported that they felt trusted by the community to which they were assigned. Two LHWs also added that only because they looked familiar did the patient's husbands/in-laws allow them to come in.

> Parveen: They (husbands) don't want us talking to their wives. The reason they trust us is because they we up in that village. If another LHW went, the family wouldn't give accurate information. That is how we gain trust. The key is to have knowledge and be prepared for any anticipated questions people might have. Since we have been going house to house and provide resources 24/7, people have been getting motivated.

And finally, *purdah* impacted care in the Attock hospital. When couples came into the regional health center, men would stand outside to respect the female healthcare providers working there. Care from a female physician is rarely available, at relatively expensive private hospitals.

Within the context of such religious priorities and value systems, Dais claimed they gained the trust of their patients and their families in the following ways: giving patients their time (n = 13); discussing examples of their successful cases (n = 2); providing undivided attention (n = 11); mentioning the protection of Allah (n = 13); providing sanitary conditions and care (n = 4); and having a commendable reputation (n = 7). Much the same, LHW's claimed they gained patient trust by: making multiple trips to each house (n = 14); discussing and addressing fears (n = 11); discussing successful cases (n = 6); and mentioning Allah (n = 4).

> Samreen (LHW): We tell her that our moms and their moms all had kids so it's nothing to be afraid of. Allah is watching over her so she should trust Him."

Many (8 out of 14) LHWs also combatted distrust by holding monthly meetings with Sheikhs, imams, teachers, and the public to educate them on mortality rates and prevalent diseases. One LHW, Nida said, "We guide the men, like *imams* from the *masjid*, teachers, from union council, so they can spread the word." An LHW also reported difficulty addressing the social priority of producing a male heir. Faiza told us, those families end up with "11 or 12" children. Dais did not take similar educational steps.

In sum, our findings confirmed differences between Dais and LHWs in their ability to perform care are deeply informed by local gender norms, and that professional reputation and trust are highly complex factors impacting both groups as they compete for clientele in the maternal healthcare marketplace.

4.3. COVID-19

Though all LHWs (n = 14) emphasized the importance of social distancing, the usage of masks and hand sanitizers, and avoidance of large gatherings, only a few Dais (4 of 15) reported using masks in their practice. Further, only a few Dais (3 of 15) expressed belief in the efficacy of the COVID vaccine. Instead, they named Allah as the true protector against COVID-19. On the other hand, all LHWs, for whom vaccination was a requirement of employment, described the vaccine as essential to preventing the spread of the virus.

Most LHWs (13 out of 14) and Dais (12 out of 15) mentioned rumors about the COVID vaccine, including extreme side effects, even death. Sherbano, a Dai, explained:

> "Especially since Covid, patients believe that they will die in the hospital. Either they will catch Corona, or the doctor will give them an injection to kill them to receive monetary incentive when reporting an increase in COVID cases. A lot of people believe that the increase in maternal deaths during Covid are due to lethal injections given at the hospital."

Such rumors prevented patients from seeking care at hospitals, and from following the advice of LHWs to give birth in a hospital. These fears, added to rules of *purdah* discussed above, compound many rural women's barriers to certain forms of care. LHWs said they are actively working to eradicate fear towards hospitals but even some LHWs had reservations about public hospitals, strongly favoring private institutions for childbirth instead. During a moment when her supervisor had stepped out of the room, Hareem, one of the LHWs, said:

> "Honestly, when we go to the hospital, we don't even drink the water there. We don't trust it at all."

This is a rare, negative commentary by an LHW.

Asked whether COVID had impacted their caseloads, six Dais reported having *more* patients because those women feared the care at the hospital. Meanwhile, most LHWs (12 out of 14) reported that the extreme fear in their patients made it more difficult for them to go into houses, to provide vaccinations (e.g polio, typhoid) to children, or to spend time with each member of the household as they used to do before the pandemic. This substantial difference, if born out across the larger population, might best be explained by the local status and familiarity of Dais as members of their communities. On the other hand, LHWs circulated as a relative stranger within households and crowded community areas while educating about "social distancing". The contradiction was not lost on Faiza, an LHW, who said:

> "There have been some difficulties as they accuse us of hypocrisy, and they aren't necessarily wrong. They say, "you tell us to keep distance and avoid crowds but you yourself go to every house and talk to everyone." We have sanitizers and take showers everyday so we're doing the best we can. People get scared, our District Health Quarter closed because of the amount of corona patients we had. Other people stopped coming."

Finally, a COVID-related lack of supplies frustrated LHW attempts to both educate and gain trust in the community. LHWs reported they were often unable to supply personal protective equipment (PPEs) to families. Seven LHWs also reported lack of masks, hand sanitizer, family planning supplies (e.g condoms, birth control), or even folic acid. Sarfraz and Hamid also documented these failures in the training and resources provided to community midwives in Attock. And in extreme cases reported to us, two LHWs encountered violence over their shortage of supplies (masks, sanitizers). Overall, fear of COVID-19 was reported by almost all LHWs as a constraint to their work while only 2 Dais mentioned COVID as restricting their practice.

LHWs were naturally aligned with the regional healthcare centers and, therefore, more likely to report their caseloads negatively impacted by fears of that institution, especially because of COVID. Any contradiction between what LHWs said about COVID protections, and what they practiced (e.g., in masking, avoiding crowds) was viewed negatively. LHWs were also less able – under their training guidelines and supervisor's watchful eye - to make adjustments in care (especially the location of childbirth) for their patients' religious beliefs about *purdah* and *izzat*. We further noted a strict hierarchy between regional physicians, LHW supervisors, and LHWs. These hierarchical variables impact

collaboration, decision making, and autonomy within the healthcare system, and certainly (intentionally) restricted the ability of LHWs to offer flexibility and cooperation to patients.

Dais, though less likely to report reductions in their patient caseloads due to COVID fears, *were* nevertheless impacted by the context of professional competition. Namely, they were frustrated by the criticisms and warnings of LHWs about their work, which they felt placed an unreasonable expectation (e.g., for hospital-like responses) despite the fact that they were working in rural communities. Bilquees, a Dai, explained:

> The doctors there are literate and powerful, if anyone were to die under their watch, they aren't questioned or held responsible. We, on the other hand, cannot afford to mess up because we will be questioned.

Dais expressed frustration over the criticisms of their work, despite their embrace of patients in rural and difficult conditions than their professionalized counterparts.

> Sherbano: People claim that our house isn't sanitary, and they could get the virus from our house, but that's completely false.
>
> Zoya: A lot of LHWs started doing cases at home and have ruined our reputation.

Despite competition from LHWs, the Dais' continued ability to work in their communities during COVID, and after decades of government programming intended to displace them, is evidence of their ongoing relevance to health care systems in rural, poor settings.

5. Discussion

Our research among traditional Pakistani midwives and government-trained LHWs produced 3 thematic findings: (1) overt disparagement of Dais by LHWs; (2) illustration of the already well-documented conflicts between local cultural and religious values surrounding birthing women, on the one hand, and biomedical values and priorities, on the other; and (3) several impacts of the COVID pandemic which seemed to exacerbate fear of hospitals, place further stress on inadequate maternal health care infrastructure, and challenge LHWs while highlighting the advantages of Dais for meeting rural women's needs.

First, the open stigmatization of Dai practice by LHWs is part of a long-standing, post-colonial government agenda that is not uncommon for the realm of maternal mortality. We believe our data expose a common flaw in programs to professionalize midwifery as a strategy for reducing maternal mortality in rural, low income settings. Namely, the training of local women as midwives and healthcare workers is intended to meet the W.H.O. guidelines for reducing maternal (and infant) mortality (World Health 2017); to use them as "bridges" between an authoritative biomedical hospital and a poorly resourced community (Jenkins, 2003). Yet instead of embracing proven paradigms of collaborative information-sharing (Keleher and Kathleen, 1998; Aquino et al. 2016), whereby local women leaders are respected for their knowledge and positions and are treated as partners to hospital clinicians, these lay leaders and traditional midwives are instead treated as dangerous competitors. Our LHW expressed just this sentiment about Dais.

Yet Dais fill a critical space in Pakistan's maternal health care system, especially and explicitly *because* it is poorly resourced, inaccessible to many, and frequently understaffed (Muhammadani, 2015). Dais remain not only trusted resources in rural communities around Pakistan, but they are also the resource of last resort when substantial (Mumtaz and Salway, 2005; Mumtaz et al., 2013a, 2013b), longstanding (Mumtaz et al., 2011), and "multifaceted" (Towghi, 2004) barriers to access mean that "there is no time or means to send the [laboring] woman for higher level care" (Towghi, 2004, 87). During COVID, regional hospitals already problematic for reasons of *izzat* and *purdah*, became even less accessible due to closures and isolation rules. To their credit under these circumstances, a Dai often feels "a moral obligation to utilize whatever skills she has to help the woman survive" (ibid.). Put simply, the disparaging of Dai care seems to ignore that substantial barriers to access in Pakistan still exist (Mumtaz and Salway, 2005).

The stigmatization of Dais, as a local but dangerous source of female knowledge and power, is part of a familiar history in medicine. Abedin argued, "The Dai is the most exploited yet the most resourceful; the most ignored yet the most indispensable, the most vulnerable yet the most valuable" (Abedin, 1996). Such a hierarchical brand of "classic professionalism" within biomedicine (Aquino et al. 2016) relies on improving access to more technological and hospital-based maternity care, but ignores the harder yet crucial work of collaboration, respect of local values and needs, and preservation of the gap-filling services by resident midwives during periods of scarcity, high stress, and isolation.

Second, we documented the relevance of local cultural and religious values as key differences between Dai and LHW practice. Although both worked to be responsive to local norms, the LHW program's commitment to hospital-based births, and the greater likelihood that any LHW was unrelated to the women she served, contribute to well-known barriers to maternal healthcare. Poor, rural women often lack autonomy over their healthcare choices (Mumtaz and Salway, 2009), their mobility is restricted (Mumtaz and Salway, 2005; Mumtaz et al., 2013a, 2013b), and norms related to gender and caste must be respected (Mumtaz et al., 2011; Mumtaz et al., 2003). Ample research describes the deep relevance of family *izzat* in gender norms across much of rural Pakistan (Mumtaz and Salway, 2005). Most Dais are, therefore, a blood relative, extended family, or valuable member of the community who can negotiate the sensitive norms related to *izzat* more easily than an outsider. Chesney and Davis explain that "the best Dais [appear] to be the woman's mother or mother-in-law" and that "the mother as the Dai, only delivering family members, is an accepted norm within the social fabric of the Pakistani community" (Chesney and Davies, 2005, 30). Dais who are not blood relatives may be called to assist in a birth, but must follow the family's orders (Rosario, 1995). Khan's study of three rural, Pakistani villages had a similar result: only 28 percent of women could go to a healthcare center unescorted, and more than 90 percent of them had to ask for permission from male relatives to travel to a different village (Khan, 1999). Thus, and to summarize a common thread in the robust literature cited on midwifery in rural Pakistan, cultural and religious values related to *izzat* and *purdah* are strongly held value systems against which the importance of biomedical or governmental advice pales.

Our third thematic area addresses COVID-related variables in our data. In addition to their long-standing differences in practice and authority, Dais and LHWs fared differently amidst high levels of COVID-related fear of hospitals and of the COVID vaccine (Beg et al., 2022; Malik et al., 2020). We witnessed a highly fearful period during which Dais could offer their long-term relationships in the community, their greater flexibility and respect toward community (i.e., family, religious, gender) norms, and their learned knowledge and skills to a fearful public. Dais did report that their practice was less disrupted by COVID than did the LHWs. Meanwhile, fears and stigma were directed at both the regional healthcare centers, where COVID was more apparent, and at LHWs if their practices (e.g., social distancing, wearing masks) differed from their instructions to the community. Indeed, skepticism among Dais about the reality of the pandemic was present, as Ali et al. have also recently documented (2021). These fears appeared to exacerbate the competition between traditional Dais and LHWs, bolstering Dai practices which had suffered under recent decades of government programming, while making it more difficult for LHWs to see patients and to achieve their goal of hospitalized births. The logistical barriers and gaps in medical supplies further alienated LHWs from their patients, and indicated the government's continuing inability to provide reliable healthcare to rural areas.

The heightened stress on resources and fears that COVID produced did not appear to have direct bearing on longstanding gender norms related to maternal healthcare seeking. Instead, family and patient fears

about COVID appear to have added to the pre-existing restrictions on women's mobility and their decision-making authority about childbirth (Hou and Ning, 2011; Mumtaz et al., 2009; Mumtaz et al., 2014; Mumtaz and Salway, 2009). Our study did not systematically engage patients, but other research sheds light on patient views of regional health center care as being, for example, "abusive" or as merely "a [morally] *behayii* (brazen) fashion" (Mumtaz et al., 2013a, 2013b, 103). Such views are not universal, but where they do exist, COVID fears could only strengthen a family's, or patient's resolve to avoid those centers. What the COVID pandemic seems also to have done is bolster distrust in the government's (and by association, biomedicine's) ability to provide appropriate and necessary care to rural Pakistan. (Ali et al., 2021).

Ultimately, the failure of Pakistan's maternal health programming to meet the needs of rural women's needs has been roundly criticized as a post-colonial problem (Towghi, 2018; Mustafa et al., 2020). While regional health centers attempt to provide staff and settings that would respect rules of *purdah*, persistent staff shortages (Muhammadani, 2015) make these promises unreliable. Women's ability to travel to these centers is limited (Mumtaz and Salway, 2005, 2009), as is the ability of LHWs to travel into patients' homes, especially when they are not family members (Mumtaz et al., 2013a, 2013b). LHWs work creatively to be helpful despite these social and economic barriers, but in doing so, they rely on traditional Dai practices. For example, several of our LHW participants used low-cost dietary substitutes for pharmaceuticals as a way to respect the resource limitations of their patients. The appeal of non-biomedical practices extends beyond costs to issues of trust in the practitioner or in their sources of information (e.g., biomedical, traditional, Ayurvedic) (Ali et al., 2021). Such forms of syncretism are not new to community-based providers in Pakistan. But the incorporation of these traditional practices by LHWs, while they simultaneously disparage traditional midwives as unsafe or backwards, reflects broader status inequities in Pakistani society (Mumtaz et al., 2013a, 2013b). The competition between Dais and LHWs is, in sum, a conflict between traditional and authoritative knowledge systems (Ali et al., 2021; Davis-Floyd and Sargent, 1997; Siddiqui, 2022).

6. Limitations

Several limitations to this study warrant mention. These narrative data are drawn from a small sample (n = 29) of maternal care practitioners, with two distinctive groups splitting that sample. We had a short period of data collection, with only 8 weeks from May to July of 2020 for observations and interviews in the site. We collected little demographic information from our participants, and the small sample lacks power for statistical generalizability. One of the largest limitations was the presence of the LHW supervisor in all interviews with LHWs. The presence of their supervisor made it apparent to us that the LHW narratives were not only restricted but were patterned. LHW responses were remarkably consistent as to what LHWs could perform, their supplies, and even their views of Dais. In future research, achieving greater access and trust among these professionals – and interviewing them away from their supervisors - would improve our understanding of competitive and disparaging attitudes. And while our current data should be interpreted with caution, the fact that LHW supervisors were complicit, if not supportive, in the disparaging remarks seems to affirm the government's historic hostility toward traditional midwives (Towghi, 2004). What other factors may be influencing this competitive atmosphere – such as caste or neighborhood dynamics (Mumtaz et al., 2013a, 2013b) – certainly warrants further study. We were, therefore, careful not to draw conclusions about LHW sentiments and, instead, to focus on patterns within the groups.

7. Conclusion

Despite the tensions between Dais and LHWs apparent in this research, these two roles are not inherently or exclusively competitive. Cooperative co-existence is a productive goal for areas of intractable maternal mortality and longstanding barriers to maternal healthcare. When government programs enact technological/resource fixes but neglect the relational work and power-sharing necessary to keep rural, low income communities engaged, they are enacting what Hyde and Roche-Reid have called "the colonization of the lifeworld of labor" (2004: 2613). Professionalization programs may train midwives in biomedically sound practices, but this creates a one-way flow of information and power. Instead, both communities and traditional midwives might be engaged as partners, not treated as short-term "bridges" until the hospitalization of birthing is complete. Though the landscape may eventually change, as Jenkins (2003) described, federal programs that aim for the displacement of traditional midwives in remote, poor areas will likely be frustrated. Midwives with reputations for successful births and good care, who are embedded within local communal hierarchies and value systems, fill a niche no others have filled (Sarfraz and Hamid, 2014).

Pakistan's promotion of LHWs has the goals of promoting professional antenatal care, increasing vaccination status, and encouraging the birthing women to use professional services at regional healthcare centers (Mahmud et al., 2011a; Hanif et al., 2021). Although the W.H.O. guidelines suggest that professionalization strategies harness existing community-based experts in cooperative ways (World Health 2015; 2017), the marginalization of traditional midwives is a common result of increased and unmanaged competition in maternity care. Our research illustrates this to be the case in Attock, Pakistan, and that COVID-related fears only affirmed the continued relevance and value of traditional Dais. Where decades of effort demonstrate the persistent relevance, desirability, and effectiveness of traditional midwives, brute slander will not dislodge them. Government authorities and biomedical professionals must work to halt the demonization, disparagement, and marginalization of traditional midwives. And programs that explicitly bolster communication and build structures to sustain cooperation between traditional and professional groups are needed.

Credit author statement

Shayzal Siddiqui: Conceptualization, Methodology, Data Collection, Data Analysis, Writing, Carolyn Smith-Morris: Supervision, Conceptualization, Methodology, Data Analysis, Writing, Editing.

Data availability

Data will be made available on request.

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