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Identifying women with poor experience of post-abortion care: a cross-sectional study in two African hospitals in humanitarian settings

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ABSTRACT

Background: High quality post-abortion care (PAC) is essential to reducing abortion-related morbidity and mortality. However, the experience of receiving PAC, a key component of care quality, remains understudied in humanitarian settings. We assessed the experience of PAC in two hospitals supported by an international organization in Jigawa State (Nigeria) and Bangui (Central African Republic, CAR) and identified characteristics associated with poor experience of PAC.

Methods: We analyzed data from two components of a multi-methods cross-sectional study: a prospective medical records review and a survey of women hospitalized for abortion complications in the Nigerian (n=360) and CAR (n=362) hospitals. We measured women's experience of PAC with two questions related to communication with health providers (explanations received and ability to ask questions) and five questions related to respect and preservation of dignity (privacy, waiting times, health provider's kindness, painkillers provision and overall care assessment). Association between women's characteristics and the two communication outcomes were investigated using multivariate logistic regressions. A latent variable was constructed using the five respect and dignity questions and its association with women's characteristics was assessed using multivariate linear regression.

Results: Nearly 51% in Nigeria hospital and 41% in CAR hospital reported receiving no explanation of their care, and over 80% in both hospitals said they felt unable to ask questions during examination and treatment. Less than 20% of women in Nigeria reported a lack of respect and preservation of their dignity. In CAR, almost 63% of women said that their privacy was not always respected during the physical examination and 38% said waiting times were long or very long before seeing a health provider. We found associations between low education level and poor experience of communication in both settings. Being adolescent was associated with one poor communication outcome in CAR and poor experience of respect and preservation of dignity in Nigeria.

Conclusion: A non-negligible proportion of PAC patients faced poor communication and mixed experiences of respect, with poorer experiences in women with low education and adolescents. Socio-demographic inequalities in PAC experiences must not be overlooked in humanitarian settings, and further research is critical to identify and support the most vulnerable women.

Keywords: quality of care, experience of care, abortion, postabortion care, maternal health, hospital, humanitarian, Nigeria, Central African Republic

INTRODUCTION

The quality of post-abortion care (PAC) is crucial for reducing severe abortion-related outcomes(1). In its Quality of Care Framework, the World Health Organization (WHO) emphasizes that a patient's experience of care is just as important a dimension of quality care as the technical provision of care(2). In particular, ensuring dignity, respectful treatment and good communication are essential dimensions of the quality of care, for two reasons. First, patients as individuals have a right to be treated with respect and dignity. Second, person-centered care is associated with greater adherence to treatment and better health outcomes.(3) Poor experience of care may lead to a range of negative consequences including emotional trauma, compromised autonomy, decreased future care-seeking behavior, and as consequences increased morbidity and mortality(4,5).

Restrictive abortion laws and societal stigmatization of abortion are likely to increase the likelihood of negative experience of PAC due to several factors including inadequate training and judgmental attitudes of health providers, as well as delayed or denied care by these providers who may fear prosecution or harassment (6–9). In addition, research from low- and middle-income countries (LMIC) suggests that women's reproductive, demographic and socio-economic characteristics affect their experience of PAC(4). For example, adolescents report worse experience of PAC due to additional stigma and requirement for parental consent(8,10,11). Women with low socio-economic status (SES) or low education report poor experience of PAC with increased risk of discrimination or stigmatization by health providers(3,4,9,11). In addition, some studies suggest that poor social support(12), psychiatric illness(12), history of sex work(10), HIV infection(10), being west or central African (versus east African)(11), and severe complications(11) are associated with negative experience of PAC.

The WHO describes fragile, conflict-affected and vulnerable settings, often referred to as 'humanitarian settings', as contexts experiencing a range of situations including prolonged disruption of essential public services, humanitarian crises, protracted emergencies and/or armed conflicts(1). In such settings, the risk of unwanted pregnancies and consequently, of unsafe abortion increases due to

the disruption of provision of routine contraceptive and safe abortion services, the deterioration in socio-economic conditions and the increased risk of sexual violence. This increased risk of unsafe abortion in turn increases the risk of severe abortion complications (13,14). In addition, women in such settings may have increased risk of miscarriages due to stress (13). Deteriorating access to quality PAC and higher risk of nutritional deficiencies leading to chronic anemia can contribute to increased severity of abortion complications (15). It is therefore essential to guarantee equitable access to high-quality PAC in humanitarian settings (16). While a cross-sectional study in the Democratic Republic of Congo suggested that women in insecure areas may report worse overall experience of PAC than women in more secure areas (17), experience of PAC in humanitarian settings remain understudied. The existing evidence is mainly qualitative (7,18) and no studies identified the characteristics of PAC patients with the poorest experience of PAC within these settings. Supplementing qualitative data which identify gaps in the quality of patient-centered care, quantitative data are needed to understand the magnitude of the problems and to identify the key dimensions of care experience, and those women most vulnerable to poor experience of PAC.

This analysis of data from the AMoCo study (**A**bortion-related **Mo**rbidity and mortality in **Co**nflict and fragile settings) complements the comprehensive assessment of PAC using the WHO quality of care framework for maternal and newborn health that was performed in two African hospitals supported by Médecins Sans Frontières (MSF) in humanitarian settings(19). It has two objectives: 1) to estimate the percentage of women reporting poor experience of PAC in these two hospitals and 2) to investigate women's characteristics associated with poor PAC experience to identify the most vulnerable women.

METHODS:

Study design, setting and participants:

The AMoCo study was a mixed-methods cross-sectional study conducted in two MSF-supported referral hospitals in humanitarian settings: in Jigawa State in northern Nigeria and in Bangui, the Central African Republic (CAR) capital. The Jigawa State is a rural State of high fragility that reported a Lassa fever outbreak(20), frequent intense floodings (21) and influx of displaced population because of armed conflicts in neighboring States (22) during the data collection period. CAR has been affected by decades of armed conflicts (23). At the time of data collection, Bangui was classified by the World Bank as an area affected by medium-intensity conflict (24,25) and the hospital is located in one of the neighborhoods most affected by armed attacks. Each hospital had around 10,000 deliveries per year, a catchment area of more than 500,000 people, and the capability to provide comprehensive emergency obstetric care(26). In both contexts, abortion laws are very restrictive (27). In northern Nigeria, induced abortion is legal only if the woman's life is threatened, and when performed by qualified practitioners. In CAR, it is permitted before eight weeks of pregnancy if the woman's health is in danger, in case of rape, fetal impairment or when a minor is in a "serious distress state", and if it is provided by a medical doctor. The detailed description of the study settings and methodology is published elsewhere (15,19) and the study protocol was registered with ClinicalTrials.gov NCT04331847 and available on MSF science portal (28). In this study, we analyzed data collected in two components of AMoCo: a prospective medical records review and a patient survey. All women who had a medical record and who presented to the hospitals with any signs and symptoms of complications from spontaneous or induced abortions between November 2019 and January 2020 at the CAR hospital and between February 2020 and July 2021 at the Nigerian hospital (with an interruption of data collection between April and July 2020 due to COVID-19) were included in the records review. Women with threatened abortion (defined as vaginal bleeding with a closed cervix) were excluded. We used the definition of abortion-related complications implemented in a study led by the World Health Organization (WHO) in 30 limited-resource settings called the WHO Multi-Country Study on Abortion (WHO-MCS-A) (29). These included any signs or conditions resulting

from inevitable, incomplete, complete or missed abortion whatever the abortion origin (induced or spontaneous) and the severity (up to life-threatening events and death). These complications include (but are not limited to), isolated non severe symptoms like vaginal bleeding, abdominal/genital pain, vaginal discharge as well as more severe conditions like organ perforation, fistula, hemorrhage, lower genital tract infection, chorioamnionitis, endometritis, peritonitis, septic shock up to organ failure at near-miss stage and death. At the CAR hospital, the staff providing post-abortion medical care included 16 medical doctors (including one obstetrician-gynecologist) and 76 midwives or obstetric nurses. In the Nigerian hospital, this care was provided by 13 physicians (including 2 obstetrician-gynecologists) and 43 midwives. The sample size was computed to estimate with precision the primary outcome of the AMoCo study in each site: the proportion of severe maternal outcome (deaths and near-miss) collected in the prospective medical record review and published elsewhere (15). Trained study clinicians, specifically hired for the study and independent from staff providing medical care, prospectively included participants in the medical record review component after an informed opt-out consent process for their data to be collected and analyzed. They extracted socio-demographic, obstetric, reproductive and clinical characteristics from their medical records with the help of the hospital's health provider in charge of the woman's care when information was missing. Certain key information was specifically verified with the provider in charge of the woman, including severity criteria and their knowledge of the type of abortion (spontaneous or induced). Women included in this records review and who were hospitalized were then invited by study clinicians to participate in a survey after they were medically stabilized. Trained female interviewers, specifically hired for the study and independent from the staff providing medical care, administered the questionnaire in the local language in a private room after obtaining informed consent. The questionnaire was translated into local languages, back translated and pretested. It included additional socio-demographic and reproductive characteristics and questions measuring experience of care. Numbers and percentages of women included at each stage of the study (including in the prospective medical records review and then in the survey) are presented in Figure 1 later in the results section. This analysis focuses solely on the subsample of women who participated in the patient survey. Results are reported according to the STROBE guidelines (30)

Main outcome: Women's experience of care

Women's experience of care was examined across two dimensions: satisfactory communication with health providers ("communication") and respectful care preserving dignity ("respect/dignity"). They were measured using seven questions extracted from the questionnaires of the person-centered maternity care scale (31–33) (developed and validated in Kenya, Ghana and India for maternity care) and the WHO-MCS-A(29). Two items of the questionnaire assessed communication (explanation of the treatment and opportunity to ask questions) on a binary scale (Table 2). The five remaining items assessed the respect/dignity dimension; two (spoken nicely and receive pain medication) on a binary scale ("yes, no") and three (waiting time, privacy and overall care assessment) on a four-point Likert scale ("very long, somewhat long, somewhat short, very short" for the item assessing the waiting time and, "never, yes a few times, yes most of the time, yes all the time" for the two items assessing the respect of privacy and the feeling of being provided with the best care).

A preliminary examination of the correlation matrix confirmed that the two communication items had low correlation with the other five items. It also showed that the two communication items were weakly correlated with each other on the CAR hospital data, unlike on the Nigerian data, suggesting that women may not interpret the meaning of the two items in the same way in each setting. As a result, we kept each of the communication items as two standalone binary outcomes and analyzed the data separately for each study site.

A confirmatory factor analysis (CFA) was then performed to test a one-factor structure of the five respect/dignity items and showed an acceptable fit (Additional file 1). Therefore, we modelled a latent variable measuring the "lack of respect/dignity" dimension as the third outcome using generalized structural equation modelling. The respect for privacy and the report that health professionals provided best care had the strongest correlation with the other items (Additional file 1). Next, the measurement invariance of the latent variable across sites was assessed using multi-group CFA and the alignment method. While the analysis supported a metric invariance, scalar invariance was rejected, suggesting that the latent variable does not have the same meaning in the Nigeria and the CAR hospitals. As a

result, the association between each exposure of interest (cf. below) and the "lack of respect/dignity" latent variable was analyzed separately for each study site.

Exposures of interest

Based on the literature, six women's characteristics were retained as determinants potentially associated with experience of care and included in this analysis: age group, education level, SES, complications' severity level, gestational age and induced abortion for which the health providers were aware (3,4,6,7,9,11,34–36). Previous research suggested that patient's demographic and socio-economic characteristics, such as age, SES, education and marital status, can explain variations in patient experiences of PAC, expectations in the quality of care received, and their satisfaction with care (3,4). However, associations with marital status were not assessed because this variable had too many missing values in both study sites. A recent cross-sectional study in the Democratic Republic of Congo found that women with more severe complications reported poorer experience of PAC(11). We explored associations with gestational age because we hypothesize that the importance of early pregnancy loss may be underappreciated by health providers (34,35) who prioritize the care of women with more advanced pregnancies (37). Finally, evidence showed that health providers may have judgmental attitudes towards the woman when they know or suspect that she induced her abortion, leading to woman's negative experience of care(6,7,9,36).

Women's age and marital status were obtained from medical records, and their education level and household SES were captured in the survey. Three age groups were considered in the analysis (adolescent ≤19, 20-29 and ≥30 years-old). Education level was grouped into two categories (low and high education levels). Household SES was a composite of the household's savings capacity, the presence of running water in the home, and perceived sufficiency of income to cover health and food needs, as proposed by the WHO-MCS-A(38) and detailed in a published AMoCo study paper(19). Women's gestational age and severe complication outcome (counting near-miss and potentially life-threatening complications as defined by WHO (39)) were collected in medical records. The Clinician-estimated gestational age at presentation was grouped as <13 weeks (first trimester) and 13-28 weeks (second trimester). To measure induced abortions of which providers were aware, we used information

from medical records, including patient statements to their providers and/or clinical signs suggestive of pregnancy termination (vaginal or cervical mechanical injury or intravaginal foreign body). The literature shows that induced abortions are generally underestimated, particularly in contexts where abortion laws are restrictive (40). Using multiple sources of information can reduce this underestimation (40). Therefore, to obtain a more accurate estimate of all induced abortions, we present another indicator combining induced abortions reported in medical records and additional self-reports made to the interviewers during the survey. Nevertheless, healthcare providers were probably unaware of induced abortions reported to interviewers during the survey but not recorded in medical records. We hypothesized that when providers were unaware of the induced abortion, they considered the pregnancy loss to be spontaneous and were less likely to have negative attitudes that influenced women's experience of care. Therefore, we only assessed associations between induced abortion of which providers were aware and poor PAC experience.

Covariates

Potential effect modifiers or confounders of the association between each of the six exposures of interest and poor experience of PAC were identified based on the literature(3,11,34,37,41,42). Then directed acyclic graph (DAG) were built with the different covariates, exposure variables and outcomes to determine if the covariate was on the causal pathway and thus should not be considered to prevent overadjustment (43) (Additional file 2). For instance, education level is a potential confounding factor between the SES and the participants' experience of PAC. The reverse is not true and the association between education level and experience of PAC should not be adjusted for SES which may be a mediating variable (i.e. on the causal pathway). Potential covariates considered in each DAG included the six exposure variables (when not being assessed as the exposure of interest), parity and pregnancy intention. Parity was collected in medical records and pregnancy intention in the survey.

Statistical analysis

Participant characteristics and experience of care indicators were summarized using medians and ranges for continuous variables or counts with percentages for categorical variables. We calculated 95% confidence interval (95% CI) using Clopper-Pearson exact methods (conservative recommended method for calculating 95% CI of binomial proportions in studies with small sample sizes without normal distribution of variables).

We used multivariable logistic regressions to examine the association between each of the six exposures of interest and the two communication binary indicators, and multivariable linear regressions to explore their association with the "lack of respect/dignity" latent continuous variable. An answer "no" to the communication indicators (treatment not explained and no opportunity to ask question) and/or a high score of the "lack of respect/dignity" latent variable represented poor experience of post-abortion care. Indeed, the "lack of respect/dignity" latent variable was modelled to measure lack of respect and poor preservation of dignity. The more the responses to the five questions used to construct this latent variable reflected a poor experience of respect/dignity (not being treated kindly, not receiving painkillers, never having one's privacy respected or only "a few times," never feeling like you were getting the best care or only "a few times," having a very long or fairly long waiting time), the higher the latent variable score. Women with missing outcomes data were excluded from analysis (0.3% of women in each hospital for the communication outcomes (n=1) and 2% of women in each hospital for the "lack of respect/dignity" outcome (n=8 in Nigeria and n=7 in CAR)). Missing data of exposures and covariates were imputed using the method of Multiple Imputation by Chained Equation(44). The modelling process, described in additional file 2, was undertaken for each exploration of the association between the six exposures of interest and the three outcomes. Multicollinearity and residuals were checked. Models fit were assessed with link, Pearson and Hosmer-Lemeshow goodness of fit tests.

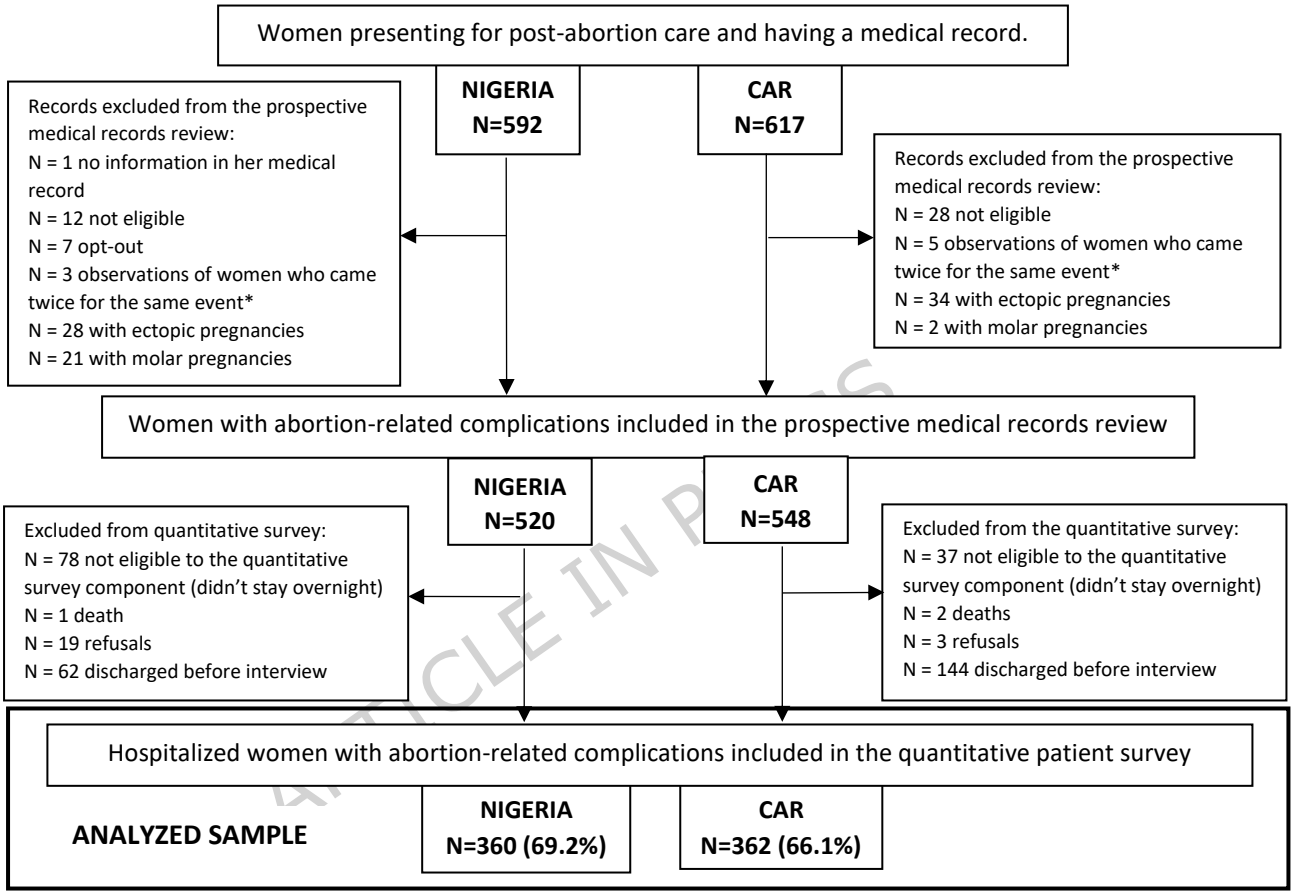
We performed analyses using Stata 17.0 (College Station, Texas, USA), Mplus version 1.8.8 (CA: Muthén & Muthén, Los Angeles, USA) and R version 4.4.0 (R Core Team 2024) software.

RESULTS

Characteristics of sample

A total of 722 women were included in analysis: 360 women from the hospital in Nigeria and 362 in CAR. The study inclusion flow chart is presented in Figure 1.

Figure 1. Study sample inclusion flow chart in the Nigerian and CAR study hospitals



*The observation with the most severe complication was kept

Table 1 shows the socio-demographic, reproductive, and obstetric characteristics of the study population. Women were older in the Nigerian hospital, and the majority (82%) were married, while in the CAR hospital, most women were unmarried (74%). In both hospitals, the economic status of the women's households seemed similar with 34% to 44% being in the poorest tertile. By contrast, women's education level differed dramatically between the two sites: in Nigeria, 62% of women had no formal education while 77% in CAR completed at least primary school. In the Nigerian hospital, 61% of women presented in their second trimester of pregnancy compared to 29% in the CAR. More than 70% and 55% of women presented with severe abortion complications in the Nigerian and CAR hospital, respectively.

Over 50% of women in both hospitals did not desire the pregnancy. In total, 23% of women in Nigeria and 45% in CAR had induced their abortion according to information contained in their medical records and/or their answers to the survey questionnaire. Nevertheless, 0.2% (n=1) of women's medical records in Nigeria, and 32% in CAR, contained information indicating that the woman reported abortion had been induced (reported induced abortion of which health providers were aware).

Table 1: Characteristics of the study population in Nigeria (n=360) and CAR (n=362) hospitals

		Nigeria hospital			CAR hospital		
		n	**%**	**(95%CI)**	**n**	**%**	**(95%CI)**
Socio-demographic characteristics							
Age (years)		**n=360**			**n=362**		
Median (range)		*28 (15-50)*			*23.5 (13-47)*		
≤19		50	13.9	10.5-17.9	100	27.6	23.1-32.5
20-29		163	45.3	40.1-50.6	177	48.9	43.6-54.2
≥30		147	40.8	35.7-46.1	85	23.5	19.2-28.2
Marital status		**n= 203** (missing: 157)			**n=234** (missing: 128)		
Not currently married or in union		37	18.2	13.2-24.2	173	73.9	67.8-79.4
Currently married or in union		166	81.8	75.8-86.8	61	26.1	20.6-32.2
Education		**n= 360**			**n= 360** (missing = 2)		
Low	No formal	222	61.7	(56.4-66.7)	3	0.8	(0.2-2.4)
	Incomplete primary	65	18	(14.2-22.4)	80	22.2	(18.0-26.9)
Higher	Incomplete secondary	55	15.3	(11.7-19.4)	248	68.9	(63.8-73.6)
	Complete secondary or higher	18	5.0	(3.0-7.8)	29	8.1	(5.5-11.4)
Socio-economic status		**n=339** (missing: 21)			**n=357** (missing: 5)		
Low		115	33.9	(28.9-39.2)	156	43.7	(38.5-49.0)
Middle		192	56.7	(51.2-62.0)	184	51.5	(46.2-56.8)
High		32	9.4	(6.5-13.1)	17	4.8	(2.8-7.5)
Obstetric and reproductive characteristics							
Previous pregnancies		**n=357** (missing: 3)			**n=361** (missing: 1)		
None		56	15.7	12.1-19.9	89	24.7	20.3-29.4
1 or more		301	84.3	80.1-87.9	272	75.3	70.6-79.7
Gestational age (in weeks)		**n=338** (missing: 22)			**n=336** (missing: 26)		
Median (range)		*16 (6-28)*			*10 (4-28)*		
<13 (first trimester)		133	39.3	34.1-44.8	238	70.8	65.7-75.6
13-28 (second trimester)		205	60.7	55.2-65.9	98	29.2	24.4-34.3
Severe complications (near-miss and potentially life-threatening complications as defined by WHO (39))*		**n=360**			**n=362**		
Yes		263	73.1	68.2-77.6	203	56.1	50.8-61.3
Pregnancy intention		**n=360**			**n=361** (missing: 1)		
Unintended		181	50.3	(45.0-55.6)	203	56.2	(50.9-61.4)
Reported induced abortion of which health providers were aware (From medical records)		**n=360**			**n=362**		
Yes		1	0.2	(0.0-1.1)	127	31.9	(28.0-36.0)
All reported induced abortion (From medical records and patient survey)		**n=360**			**n=362**		
Yes		84	23.3	(19,1-28,1)	164	45.3	(40.1-50.6)

CAR: Central African Republic, 95% CI: 95% Confidence Interval

*Severe complications include WHO maternal near-miss complications (organ dysfunction of either one or more of the following: cardiovascular, respiratory, renal, coagulation, hepatic, neurologic or uterine dysfunction) and WHO potentially-life threatening complications (severe hemorrhage, severe systemic infection or suspected uterine perforation) (39). Women who did not have severe complications include women with "moderate complications" (heavy bleeding, suspected intra-abdominal injury, or infection) without signs of potentially life-threatening or near-miss complications and women with "mild complications" based on abnormal physical examination findings on initial assessment (vital signs, appearance, mental status, abdominal and gynecological examination) as defined by WHO in the WHO-MCS-A (39).

Experience of PAC

The distribution of responses by question is shown in Table 2. In terms of communication, 51% of the participants in the Nigerian hospital and 41% in CAR reported having obtained no explanation of the care received, and over 80% in both hospitals said they felt unable to ask questions during examination and treatment.

In terms of respect and preservation of their dignity, one fifth of women in both hospitals reported not receiving pain medication. In Nigeria, 12% of women reported they had not been spoken to nicely compared with 20% in CAR. Around 18% of women in Nigeria and 38% in CAR found waiting times were long or very long. Finally, while 12% of Nigerian women said that their privacy was not always respected during the physical examination, almost 63% of women reported this in CAR.

Table 2: Experience of care reported by women with abortion complications in Nigeria and CAR study hospitals

Indicators (items)	Nigerian hospital			CAR hospital		
	Number of cases	Percentage %	95% Confidence Interval	Number of cases	Percentage %	95% Confidence Interval
Effective communication						
During your stay at this hospital, were you given explanations regarding your care and treatment?	n=359 μ			n= 361 μ		
No	182	50.7	45.4-56.0	147	40.7	35.6-46.0
Yes	177	49.3	44.0-54.6	214	59.3	54.0-64.4
Were you able to ask questions during examinations and treatment?	n=359 μ			n= 361 μ		
No	300	83.6	79.3-87.2	308	85.3	81.2-88.8
Yes	59	16.4	12.8-20.7	53	14.7	11.2-18.8
Respect and preservation of dignity						
Were you spoken to nicely?	n=359 μ			n= 361 μ		
No	44	12.3	9.0-16.1	75	20.8	16.7-25.3
Yes	315	87.7	83.9-91.0	286	79.2	74.7-83.3
During your physical examination, were you covered up (or given privacy in such a way that only the doctor or nurse examining you could see you)?	n=358 α			n= 361 μ		
Never	6	1.7	0.6-3.6	21	5.8	3.6-8.7
Yes, a few times	16	4.5	2.6-7.2	48	13.3	10.0-17.2
Yes, most of the time	21	5.9	3.7-8.8	154	42.7	37.5-47.9
Yes, all the time	309	86.3	82.3-89.7	134	37.1	32.1-42.3
Not examined	*6*	*1.7*	*0.6-3.6*	*4*	*1.1*	*0.3-2.8*
How do you feel about the amount of time you waited to see a health provider?	n=358 α			n= 358 β		
Very long	25	7.0	4.6-10.1	73	20.4	16.3-24.9
Somewhat long	41	11.5	8.3-15.2	64	17.9	14.0-22.2
Somewhat short	41	11.5	8.3-15.2	125	34.9	30.0-40.1
Very short	251	70.1	65.1-74.8	96	26.8	22.3-31.7
Did you receive pain medications during your hospital stay?	n=359 μ			n= 361 μ		
No	72	20.1	16.0-24.6	65	18.0	14.2-22.4
Yes	287	79.9	75.4-84.0	296	82.0	77.6-85.8
Did you feel the doctors, nurses and other staff at the facility took the best care of you?	n=359 μ			n= 361 μ		
No, never	1	0.3	0.0-1.5	3	0.8	0.2-2.4
Yes, a few times	41	11.4	8.3-15.2	65	18.0	14.2-22.4
Yes, most of the time	85	23.7	19.4-28.4	169	46.8	41.6-52.1
Yes, all the time	232	64.6	59.4-69.6	124	34.3	29.5-39.5
Lack of respect and preservation of dignity latent variable score *(mean, range)* *	n=352 ∑			n=355 Ω		
	- 0.1933 (-0.6079 to 0.8368)			- 0.1292 (-1.0441 to 1.2092)		

* Latent variable score calculated by generalized structural equation modelling using the 5 respect and dignity variables. The higher the latent score, the worse the experience of respect and dignity is; μ missing data: n=1; α missing data: n=2; β missing data: n=4; Ω missing data: n=7; ∑ missing data: n=8; CAR: Central African Republic

Women's characteristics associated with poor experience of PAC

The associations between induced abortion and poor PAC experience were only assessed in the CAR hospital, because in Nigeria, analyses were impossible as only one woman's medical record indicated that she had had an induced abortion.

Poor communication experience with health providers

The associations between women's characteristics and poor communication outcomes are presented in Table 3.

In the Nigeria hospital, having low education compared to having higher education was associated with poorer treatment explanation by health providers (adjusted OR (aOR) 2.02 p=0.01) and with less opportunity to ask questions (aOR 2.31 p=0.01). In the CAR hospital, low education and living in a poor household were associated with lower odds of being able to ask questions (respectively aOR 2.24 p=0.05 and aOR 0,70 for each additional unit of SES, p=0.005). In this same hospital, adolescents had a higher odd of reporting poorer treatment explanation by health providers (aOR 2.04 p = 0.05) and having had an induced abortion of which health providers were aware was associated with less opportunity to ask questions (aOR 2.13 p=0.04).

Table 3: Bivariate and multivariable logistic regression models showing association of women's characteristics with poor communication in the two hospitals

Table 3a: Outcome: The woman reported that the care and treatment were not explained to her

		Nigeria (N=359)		CAR (N=361)	
		OR or aOR (95%CI)	p (lrtest)	OR or aOR (95%CI)	p (lrtest)
Model 1: no confounders					
Age group	<19	1.31 (0.69-2.50)	0.71	**2.04 (1.12-3.70)**	**0.05**
	19-29	1.04 (0.67-1.63)		1.31 (0.76-2.26)	
	>=30	ref		ref	
Models 2: adjusted for age group					
a. Education	Low education	**2.02 (1.19-3.43)**	**0.009**	1.33 (0.79-2.21)	0.28
	Higher education	ref		ref	
b. SES	For each 1 unit ↑	0.89 (0.75-1.44)	0.15	0.91 (0.76-1.09)	0.31
Models 3: adjusted for age group and SES					
a. Gestational age in trimester	First	1.39 (0.90-2.15)	0.14	1.27 (0.79-2.04)	0.32
	Second	ref		ref	
b. Severe complications	Yes	1.44 (0.89-2.34)	0.13	0.81 (0.52-1.24)	0.33
	No	ref		ref	
c. Reported induced abortion of which health providers were aware	Yes	NA	NA	0.81 (0.52-1.29)	0.38
	No	NA		ref	

OR: Odd Ratio; aOR: Odd Ratio adjusted for confounding factors;
95% CI: 95% Confidence Interval; p (lrtest): p from the Likelihood Ratio Test
CAR: Central African Republic; Ref: reference group for the logistic regressions; SES: Socio-Economic Status
NA: Not Applicable because only one woman's medical record indicated that she had had an induced abortion.

Table 3.b: Outcome: The woman reported she was not able to ask questions

		Nigeria (N=359)		CAR (N=361)	
		OR or aOR (95%CI)	p (lrtest)	OR or aOR (95%CI)	p (lrtest)
Model 1: no confounders					
Age group	<19	2.85 (0.95-8.55)	0.12	1.12 (0.51-2.47)	0.83
	19-29	1.31 (0.73-2.34)		1.25 (0.61-2.56)	
	>=30	ref		ref	
Model 2: adjusted for age group and number of previous pregnancies					
Education	Low education	**2.31 (1.22-4.36)**	**0.01**	**2.24 (1.00-5.30)**	**0.05**
	Higher education	ref		ref	
Model 3: adjusted for age group					
SES	For each 1 unit ↑	0.88 (0.70-1.10)	0.25	**0.70 (0.54-0.90)**	**0.005**
Models 4: adjusted for age group and SES					
a. Gestational age in trimester	First	1.38 (0.76-2.50)	0.28	1.04 (0.55-1.99)	0.89
	Second	ref		ref	
b. Severe complications	Yes	**1.75 (0.94-3.24)**	**0.08**	1.05 (0.58-1.92)	0.86
	No	ref		ref	
c. Reported induced abortions of which health providers were aware	Yes	NA	NA	**2.13 (1.05-4.3)**	**0.04**
	No	NA		ref	

OR: Odd Ratio; aOR: Odd Ratio adjusted for confounding factors;
95% CI: 95% Confidence Interval; p (lrtest): p from the Likelihood Ratio Test
CAR: Central African Republic; Ref: reference group for the logistic regressions; SES: Socio-Economic Status
NA: Not Applicable because only one woman's medical record indicated that she had had an induced abortion.

Poor experience of respect and preservation of dignity

Table 4 shows the association of women's characteristics with the latent variable representing lack of respect and preservation of dignity in the PAC provided.

In Nigeria, being adolescent and having mild or moderate complications (as defined in Table 1) were associated with poorer experience of respect/dignity (p=0.001 and p=0.002, respectively), compared to being older and having severe complications, respectively. There was also a trend towards poorer experience of respect/dignity among women with low education level (p=0.06). Women in CAR with higher SES reported poorer experience of respect/dignity (p<0.001).

Table 4: Bivariate and multivariable linear regression models showing women's characteristics associated with poor experience of respect/dignity in the two hospitals

		Nigeria (N=352)		CAR (N=355)	
		β or βa (95%CI)	p (lrtest)	β or βa (95%CI)	p (lrtest)
Model 1: no confounders					
Age group	<19	**0.20 (0.09-0.31)**	**0.001**	0.03 (-0.14-0.20)	0.36
	19-29	**0.08 (0.004-0.15)**		0.10 (-0.04-0.26)	
	>=30	ref		ref	
Model 2: adjusted for age group					
Education	Low education	**0.08 (-0.004-0.17)**	**0.06**	-0.11 (-0.25-0.04)	0.15
	Higher education	ref		ref	
Model 3: adjusted for age group and education level					
SES	For each 1 unit ↑	0.00003 (-0.028-0.028)	0.99	**0.11 (0.06-0.16)**	**<0.001**
Models 4: adjusted for age group, SES and education level					
a. Gestational age in trimester	First	-0.06 (-0.13 – 0.14)	0.11	0.06 (-0.07-0.19)	0.34
	Second	ref		ref	
b. Severe complications	Yes	**-0.13 (-0.21- -0.05)**	**0.002**	-0.05 (-0.17-0.07)	0.37
	No	ref		ref	
Model 5: adjusted for age group and SES					
Reported induced abortion of which health providers were aware	Yes	NA	NA	0.008 (-0.12-0.13)	0.90
	No	NA		ref	

β = β coefficient of the linear regression
βa = β coefficient of the linear regression adjusted for confounding factors
95% CI: 95% Confidence Interval; p (lrtest): p from the Likelihood Ratio Test
CAR: Central African Republic; Ref: reference group for the linear regressions; SES: Socio-Economic Status
NA: Not Applicable because only one woman's medical record indicated that she had had an induced abortion.

Table 5 summarizes key women's characteristics associated with poor experience of PAC across the three outcomes.

Table 5: Summary of the associations between the six exposures of interest and the three outcomes in the two hospitals

	Outcomes					
	Communication				Respect & Dignity	
Exposures of interest	Outcome 1: care & treatment not explained		Outcome 2: not able to ask questions		Outcome 3: poor experience of respect & preservation of dignity	
	Nigeria	CAR	Nigeria	CAR	Nigeria	CAR
Adolescent (≤19 years)	X	↑	X	X	↑	X
Low Education	↑	X	↑	↑	⇑	X
Low SES	X	X	X	↑	X	↓
First trimester	X	X	X	X	X	X
Severe complications	X	X	⇑	X	↓	X
Induced abortion of which health providers were aware	NA	X	NA	↑	NA	X

Legends:

↑ Positively associated (statistically significant) ⇑ Positively associated (borderline significant)

X No association

↓ Negatively associated (statistically significant) ⇓ Negatively associated (borderline significant)

Statistically significant: $p<0.05$; Borderline significant: $0,05<p<0,10$, SES: Socio-Economic Status, CAR : Central African Republic, NA: Not Applicable because only one woman's medical record indicated that she had had an induced abortion.

DISCUSSION:

This study of over 700 women receiving post-abortion care in two hospitals within humanitarian settings in sub-Saharan Africa revealed that women reported significant difficulties in their care experience despite the hospitals' support from an international NGO. In both hospitals, a substantial percentage of women reported poor communication with health providers. While most women in the Nigerian hospital reported positive experiences concerning respect and dignity, experiences were less positive in the CAR hospital, with important shortcomings in privacy during physical examinations and long waiting times for care. Several factors related to women's characteristics like low education, being an adolescent and reported induced abortion are associated with at least one poor experience of PAC outcome.

It is worth noting that the two populations included in this study were different in terms of socio-demographic characteristics, in their age distribution, education achievement and marital status. Despite these differences, we found quite a consistent association between low education and poor communication experience across the two settings, although a significant association was not found for one of the communication items in CAR (care and treatment not explained). Household wealth was also associated with less opportunity to ask questions and adolescence with higher risk of poorer explanation of treatment by health providers in CAR. These results suggest that social and demographic inequalities may underpin the communication quality in these humanitarian settings, similarly to what has been found in stable Sub-Saharan African settings (11,45,46). Fanning et al argue that emergency contexts may amplify inequalities because of uncertain, competitive and urgent nature of humanitarian crises, all the more in LMIC where scarcity of resources are presumed(47). Low-educated women or adolescents are more likely to face discriminatory communication in maternal care as previously demonstrated in several studies (33,48,49). This situation might be exacerbated among adolescents by additional discriminations linked to the stigma surrounding premarital pregnancy at a young age (38). As suggested by Afulani et al. (50), caregivers' bias in providing equitable person-centered care may contribute to this phenomenon. This bias refers to conscious/explicit or unconscious/implicit perception of women's expectations and abilities, with, for

example, beliefs that these women are unlikely to understand explanations. On the other hand, women with low education or adolescents may be less likely to be able to advocate for themselves and demand better communication(41). In addition, women's desire for communication may be further ignored by overburdened and stressed health providers especially in humanitarian contexts where they may not have the time to communicate using tailored but time-consuming methods (4,11).

In CAR but not in Nigeria, we found opposite relationships between the two dimensions of PAC experience and women's SES. While women from poor households reported poorer experience of communication, they reported better experience of respect and preservation of dignity. It is plausible that a shift in the expectations of care and/or desirability bias may explain these counterintuitive results (5). By contrast to the questions assessing communication with health providers which are more factual, those around respect and dignity may be more sensitive to expectations of the women regarding care. For example, women living in poor households might have lower expectations in terms of respect of privacy or might less dare to express their poor experience than women from wealthier households (3,4). What is considered disrespectful might shift based on social expectations, as well as awareness of human rights and of what is supposed to be expected from health providers and health facilities, especially in context of power imbalance like in a health provider-patient relationship.

Our results show little association between reported induced abortion and poor experiences of care in the CAR hospital, the only hospital where we were able to assess this association. However, several studies in stable settings, have shown that discriminatory attitudes towards women who had induced abortion lead to negative care experience (6,7,9,36). Our reassuring results are possibly the fruit of the iterative trainings from which the hospital's health providers have benefited, in particular the various Values Clarification and Attitudes Transformation (VCAT) workshops which have demonstrated their impact in recently published studies (51,52). As indicated in an AMoCo study report (53), 72% of health providers of PAC in this CAR hospital benefited from at least one VCAT workshop, the last of which took place nine to twelve months prior to the collection of these data (January 2019). Nevertheless, efforts need to be maintained as our study showed an association between induced abortion reported to health providers and women not asking them questions. This may be linked to

potential residual discriminative attitudes by providers, or a reflection of the shame women may feel about this act. Even if health providers don't show judgmental attitudes, women may not dare to ask questions if they are not encouraged to do so, especially in contexts like Northern-Nigeria or CAR which have restrictive abortion laws and stigmatizing societal contexts towards abortion (27). In the Nigerian hospital, the societal context may have had a stronger impact on women as only one of the 127 women who reported having had an induced abortion in the survey disclosed it to her health provider. In this setting, women have a low education level, are mainly married and live in a rural patriarchal society with strong traditional gender roles and low women autonomy (54,55). A report from the AMoCo study reveals that 92% of providers request the husband/partner's consent to provide PAC (56). All of this may have a greater impact on women's reluctance to disclose their induced abortion to their healthcare provider (due to fear that it will then be disclosed to their husband) than in the urban hospital in CAR, where women have a higher level of education, are generally not in a union, and where 39% of providers request the husband/partner's consent to provide PAC (53). Consequently, we were unable to assess whether providers' awareness that their patients had an induced abortion influenced these women's PAC experience in the Nigerian hospital.

Finally, there was a strong correlation between women's overall experience of PAC quality and the reported respect for privacy during physical examinations, these two items contributing the most to the respect/dignity dimension in CAR. Literature shows that a positive experience of care leads to greater satisfaction with care (3). Even though some authors argue that privacy may not be as highly valued in collectivist cultures like in Africa compared to individualistic cultures of Western countries (57), several studies showed that privacy is a key determinant of satisfaction with care including in countries classified as culturally collectivist (48,58–60). As highlighted by Valentine et al. (59), patients' priority areas for their care experience may be more influenced by scarcity theory. In contexts where public health expenditures and the human development index are low, people may attach relatively more importance to basic amenities than to other elements such as ensuring their privacy. Nevertheless, once the basic needs are fulfilled, like in these two MSF-supported hospitals (19), patients put the emphasis on privacy, communication and prompt attention (59).

Limitations:

Our study has some limitations. First, while our study collected highly detailed data, it was limited to two facilities, which restricts its external validity. The discharge of 62 women in Nigeria and of 144 in CAR, prior to the invitation to an interview, may have created selection bias, potentially excluding sub-groups such as women discharged on Sunday or with time constraints who may have had less severe complications or women living far away from the hospitals. Second, even though we used questions from questionnaires validated in Kenya, Ghana and India to assess experience of maternity care, our inability to identify and use validated instruments specific to abortion limits the comparability of our study with other studies in different populations and time(46). Our short set of questions includes a relatively small number of items (seven) to measure two broad experience dimensions. This was deemed important to achieve a good responsiveness in this context, but it limits the capture of their full complexity. In addition, to prevent multiple testing, we did not assess the association of women's characteristics with each of the five items measuring the dimension of respectful care preserving dignity. Finally, our study explored only a limited number of determinants of PAC experience in small samples in two hospitals. Other unmeasured explanatory or mediating characteristics may contribute to this relationship, and some of these may be context specific. For example, we did not explore the association of experience of PAC with marital status, as this variable had over 30% missing values. Unfortunately, this variable was extracted from the medical records where health care professionals did not fulfill it systematically. Furthermore, we did not explore organizational and provider-related factors, such as overcrowding and providers' type, skills, attitudes or practices (like coercing women to use post-abortion contraception), which may influence the reported care experiences. Finally, even though the study clinicians specifically verified information on the type of abortion with the women's health providers, the measure of the induced abortion of which they were aware may be biased as this data may still be underreported in medical records. Some women may have been misclassified in the group "no induced abortion of which the provider was aware" instead of the group "induced abortion of which the provider was aware". This may have led to over or underestimation of its association with poor PAC experience. For example, if healthcare

providers of misclassified women had stigmatizing attitudes leading to poor healthcare experiences, the association between induced abortion of which providers were aware and poor PAC experiences may have been underestimated. Conversely, if these providers were nonjudgmental and encouraged women to ask questions, the association between induced abortion of which providers were aware and a decrease in women's opportunities to ask questions may have been overestimated. Further research is needed to identify key risk factors as well as mediators of poor PAC experience in humanitarian settings, including in non-NGO supported facilities, to better tailor quality of care improvement strategies to women who need them the most.

Implications for policies and practices

Our results suggest that beyond the well-documented socio-economic barriers to healthcare access (61), inequities persist even among women receiving free care in humanitarian hospitals. These inequities should be addressed in the provision of post-abortion care and the design of interventions, as they contribute to poor care experiences. While there is an urgent need to enhance respectful communication with all patients about their conditions, care and post-abortion contraception, specific strategies need to be developed to particularly improve communication with women of low education level and with adolescents in a supportive, empathetic, and nonjudgmental attitude.

In addition, hospital managers and health providers should ensure an environment that facilitate respect and preservation of dignity, including for women of low education levels and adolescents. Interventions, such as VCAT workshops, training and supervision of health providers, as well as installing curtains between beds and using sheets to cover women during care, should be implemented.

More research is needed to identify which intervention is effective in reducing such in-hospital inequities. Research could assess the development and use of communication tools specific to identified vulnerable women. Assigning focal persons to support health providers' communication with them, as has been developed for people with disability in emergency settings (62), could help meet their needs. Testing tailored models of shared decision-making to elicit women's preference for management (for e.g. allowing her to choose between medical or instrumental management of incomplete abortion) and creating a partnership and balance of power during PAC may be a step

towards improving women's autonomy (63). Interventions should also include a component focusing on health providers' well-being at work. Indeed, health provider's stress, burn-out as well as their lack of training in dealing with difficult situations and implicit bias are key drivers of patients' disrespectful care (50). Taking care of health providers is even more important in humanitarian settings where stress and workload can be multiplied. Interesting interventions like the CPIPE (Caring for Providers to Improve Patient Experience) could be adapted for PAC, mainstreaming inequities in its different components (64).

CONCLUSION:

Our research in two hospitals in humanitarian settings showed that overall, a substantial percentage of women experienced poor communication with health providers and mixed experienced of respect and preservation of dignity. Low education and adolescence were associated with poorer experience of communication, respect and dignity.

Patient's experience of PAC is a crucial dimension of quality care. Ensuring positive experience of PAC can contribute to reduce morbidity and mortality from induced and spontaneous abortions through better adherence to treatment, improved autonomy, and adequate care-seeking behavior. In humanitarian settings where attention is often focused on inequalities in access to facility-based sexual and reproductive care, the possibility of inequalities in experience of PAC within facilities should not be neglected. Further research is needed to identify the most vulnerable women, including in facilities that are not NGO-run and not free at point of care. Patient-centered quality improvement approaches should be developed and tested using multi-faceted interventions targeting those vulnerable women to mitigate the gaps in user experience.

LIST OF ABBREVIATIONS

AMoCo: Abortion-related Morbidity and mortality in fragile and Conflict-affected settings (study)

CAR: Central African Republic

CFA: Confirmatory Factor Analysis

DAG: Directed Acyclic Graph

LMIC: Low-and-Middle-Income Countries

MSF: Médecins Sans Frontières

NGO: Non-Governmental Organization

OR: Odd Ratio

aOR: Adjusted Odd Ratio

PAC: Post-Abortion Care

SES: Socio-Economic Status

VCAT: Values Clarification and Attitudes Transformation

WHO: World Health Organization

WHO-MCS-A: World Health Organization Multi-Country Study on Abortion

DECLARATIONS

Ethics approval and consent to participate.

This research adhered to the principles of the Declaration of Helsinki. Independent ethical approvals were obtained from MSF (ID 18110), the Guttmacher Institute (DHHS identifier IRB00002197), and both Central African Republic (N°18/UB/FACSS/CSCVPER/19) and Jigawa State ethical review boards (MOH/SEC.3/S/548/I). Participants of the patient quantitative survey were included after an informed consent process. In accordance with the Council for International Organizations of Medical Sciences guidelines (65), all ethical committees provided a waiver of written informed consent for the extraction of routine clinical data in the prospective medical records review with no identifying information and approved the application of an informed consent opt-out procedure instead.

Consent for publication.

Not applicable

Availability of data and materials

The AMoCo study protocol is available in the MSF science portal: https://scienceportal.msf.org/assets/7660 and was registered with ClinicalTrials.gov NCT04331847

(the 14th of January 2020). The dataset collected during the study, including deidentified participant data, data dictionary and additional related documents (data collection tools, manual of procedures, interviewers guide, standard operating procedures) are available from the corresponding author or dpco@epicentre.msf.org on reasonable request, following MSF's data sharing policy which ensures that data will be available upon request to interested researchers while addressing all security, legal, and ethical concerns, especially for sensitive subjects like abortion in vulnerable populations.

Competing interests

The authors declare that they have no competing financial interests. EP and TW were employed by Médecins Sans Frontières at the study development and implementation, which is the organization that supported the provision of care in the two studied public hospitals and was a collaborating organization on the AMOCO study.

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Authors' contributions

EP, RN, MAG, OO, and the AMoCo study group participated in developing the study design and protocol. EP, RN, OO, TF, VF and the AMoCo study group participated in the development of data

collection tools and procedures. EP, RN, MAG, OO, TW and the AMoCo study group participated in coordinating data collection. EP and PDB performed the statistical analysis with contributions of LB, VF and OD. EP wrote the first draft of the manuscript. PDB, LB, RN, MAG, OO, TW, VF, and OD made substantial contributions to the first and subsequent versions of the manuscript. All authors made contributions to interpretation of findings and read and approved the final manuscript.

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ADDITIONAL FILES

Additional file 1: Generalized Structural Equation Modeling to construct a latent variable measuring the level of respectful care preserving dignity. (14122024_AMoCo_ExpCare_Addfile1)

Additional file 2: Description of the Directed acyclic graphs (DAG) and the process used to evaluate the associations between the exposures of interest and the three poor experience of PAC outcomes. (13112024_AMoCo_ExpCare_Addfile2)