

BMJ Open

BMJ Open is committed to open peer review. As part of this commitment we make the peer review history of every article we publish publicly available.

When an article is published we post the peer reviewers' comments and the authors' responses online. We also post the versions of the paper that were used during peer review. These are the versions that the peer review comments apply to.

The versions of the paper that follow are the versions that were submitted during the peer review process. They are not the versions of record or the final published versions. They should not be cited or distributed as the published version of this manuscript.

BMJ Open is an open access journal and the full, final, typeset and author-corrected version of record of the manuscript is available on our site with no access controls, subscription charges or pay-per-view fees (<http://bmjopen.bmj.com>).

If you have any questions on BMJ Open's open peer review process please email info.bmjopen@bmj.com

BMJ Open

Organisational and individual readiness for change to respectful maternity care practice and associated factors in Ibadan, Nigeria: a cross-sectional study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2022-065517
Article Type:	Original research
Date Submitted by the Author:	09-Jun-2022
Complete List of Authors:	Esan, Oluwaseun; Obafemi Awolowo University College of Health Sciences, Department of Community Health, Faculty of Clinical Sciences; University of the Witwatersrand Faculty of Health Sciences, Centre for Health Policy, School of Public Health Maswime, Salome; University of Cape Town Faculty of Health Sciences, Global Surgery Division, Department of Surgery Blaauw, Duane; University of the Witwatersrand Faculty of Health Sciences, Centre for Health Policy, School of Public Health
Keywords:	Change management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PUBLIC HEALTH, REPRODUCTIVE MEDICINE, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Organisation of health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

SCHOLARONE™
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

1
2
3 **1 Organisational and individual readiness for change to respectful maternity care practice**
4 **and associated factors in Ibadan, Nigeria: a cross-sectional study**
5
6
7
8
9

10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

4 **1. Dr Oluwaseun Taiwo Esan**

5 Department of Community Health, Faculty of Health Sciences,

6 Obafemi Awolowo University/ Teaching Hospitals Complex, Ile-Ife, Osun State, Nigeria.

7 & Centre for Health Policy, School of Public Health, University of the Witwatersrand,
8 Johannesburg, South Africa

9 Email: o.esan@oauife.edu.ng

10 ORCID: 0000-0002-2908-6034

11 **2. Professor Salome Maswime**

12 Global Surgery Division, Department of Surgery, Faculty of Health Sciences,

13 University of Cape Town, Cape Town. South Africa

14 ORCID: 0000-0003-4013-5164

15 E-mail: salome.maswime@uct.ac.za

16 **3. Dr Duane Blaauw**

17 Centre for Health Policy, School of Public Health,

18 Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa.

19 ORCID: 0000-0002-0605-7134

20 E-mail: duane.blaauw@wits.ac.za

21
22 **Corresponding author:**

23 **Name:** Dr Oluwaseun Taiwo Esan

24 **E-mail:** o.esan@oauife.edu.ng

25
26 Word count: 3,981

Abstract

Objectives: This study assessed health providers' organisational and individual readiness for change to respectful maternity care (RMC) practice and their associated factors in Ibadan Metropolis, Nigeria. The study explored the relevance of readiness for change theories to the RMC literature.

Design: An analytical cross-sectional study with standardised structured instruments adapted from the literature.

Setting: Nine public health facilities (5 primary and 4 secondary) in Ibadan Metropolis, Nigeria

Participants: 212 health providers selected via a two-stage cluster sampling

Primary and secondary outcomes: Organisational readiness for change to RMC (ORC_{RMC}) and individual readiness for change to RMC (IRC_{RMC}) scales were scored out of a maximum of 5. We evaluated previously identified predictors of readiness for change (change valence, informational assessments on resource adequacy, core self-evaluation and job satisfaction) and additionally proposed ones from our study (workplace characteristics, awareness of mistreatment during childbirth, perceptions of women's rights and resource availability to implement RMC) on ORC_{RMC} and IRC_{RMC} . Data were adjusted for clustering and analysed using Stata 15. Multiple linear regression was used to identify factors influencing IRC_{RMC} and ORC_{RMC} .

Results: The providers' mean age was 44.0 ± 9.9 with 15.4 ± 9.9 years of work experience. They scored high on awareness of women's mistreatment (3.9 ± 0.5) and women's perceived rights during childbirth (3.9 ± 0.5). They had high ORC_{RMC} (4.1 ± 0.9) and IRC_{RMC} (4.2 ± 0.6) with both weakly but positively correlated ($\rho = 0.407$, $p < 0.001$). Providers also had high change valence (4.5 ± 0.8) but lower perceptions of resource availability (2.7 ± 0.7) and adequacy for implementation (3.3 ± 0.7). Higher provider change valence and informational assessments

1
2 significantly increased both IRC_{RMC} and ORC_{RMC} . Longer years of work experience ($p=0.024$),
3
4 providers' personal income ($p=0.021$) and the health facility of practice significantly influenced
5
6
7 ORC_{RMC} .
8

9
10 **Conclusion:** The health providers in the study valued a change to RMC and believed that both
11
12 them and their facilities were ready for the change to RMC practice.
13

14
15 **Key words:** Organisational readiness, individual readiness, readiness for implementing change,
16
17 respectful maternity care, pre-implementation research, change commitment and efficacy
18

19 20 21 **Strengths and limitations of this study**

- 22
23
24 • To the best of our knowledge, this is the first study to explore the readiness for change
25
26 theories (organisational and individual readiness for change) to the recently evolving
27
28 respectful maternity care literature.
29
- 30
31 • This is the first study to assess both organisational and individual readiness for change
32
33 on the same population within the same study and objectively assess the relationship
34
35 between both.
36
- 37
38 • This is the first study to apply the adapted instrument on individual readiness for
39
40 change in a health care setting.
41
- 42
43 • The study was however limited in its geographical extent as it was conducted in
44
45 Ibadan Metropolis, one metro in Nigeria, even though Ibadan is a cosmopolitan city
46
47 being the third largest city in Nigeria and the seventh in Africa.
48
- 49
50 • The study was limited in its scope as tertiary health facilities were not studied because
51
52 there was only one tertiary health facility serving populations in the study location.
53
54 Thus the study findings would not be generalisable to health providers' practicing in
55
56 tertiary health facilities.
57
58
59
60

74 **1.1. Background**

75 Respectful maternity care has been defined as “*care organised for and provided to all women*
76 *in a manner that maintains their dignity, privacy and confidentiality, ensures freedom from*
77 *harm and mistreatment, and enables informed choice and continuous support during*
78 *childbirth*” (page 3).¹ It is a human rights approach to maternity care² and is recommended as
79 the standard for all women.³ Several RMC-promoting interventions have been implemented
80 and have shown promising results.⁴ For these results to be enduring and sustainable, the health
81 providers will need to embrace and support the interventions. This can be achieved if they are
82 ready for the change to a RMC practice.

83 Readiness for change measures the extent to which people or organisations are inclined to adopt
84 a change that alters the “status quo”.⁵ It addresses the psychological and behavioural forms of
85 readiness for change, that is the state of being willing and able to change.^{6,7} Some authors also
86 describe it as having a structural component that addresses the presence or absence of financial,
87 material, and human resources needed for a change, such as to RMC practice.⁷ Readiness for
88 change is also a multilevel construct measured at individual and organisational levels.
89 Organisational readiness for change is a multifaceted concept that consists of employees’
90 change commitment (their collective resolve) and change efficacy (their perceived shared
91 ability) to implement the change.⁶ Individual readiness for change is employee’s confidence to
92 manage the change or willingness to accept new roles and adopt new practices.⁸

93 Readiness for change is a key determinant of implementation success.^{9,10} The readiness for
94 change concept has been applied in both health and non-health organisations, however, there
95 are no previous studies on its application to RMC-promoting interventions. Readiness for
96 change to RMC among community, facility and policy stakeholders was mentioned as being
97 responsible for the positive results of a RMC project in Kenya.¹¹ However, readiness for change
98 was not measured directly in that study.¹¹ Many RMC-promoting interventions have been

1
2 99 conducted without prior assessment of individual or organisational readiness for change.^{12,13}
3
4 100 However, if readiness is assessed and found wanting, efforts can be directed at improving it. If
5
6 101 otherwise, this suggests the providers' willingness to accept the change irrespective of the work
7
8 102 task demands brought by it. This study assessed health providers' organisational and individual
9
10 103 readiness for change to RMC practice and their associated factors in Ibadan Metropolis,
11
12 104 Nigeria.

16 105 **1.2. Methods**

17
18 106 This was a cross-sectional study conducted from December 1, 2019 to May 31, 2020 among
19
20 107 public health care providers from the five Local Government Areas (LGA) in Ibadan
21
22 108 Metropolis, Oyo state, Nigeria. There are 6 public secondary and 26 public primary health
23
24 109 facilities in the five LGAs. Maternity care services, including delivery services, are offered in
25
26 110 all facilities, with more specialised care at secondary health facilities. Doctors and nurses attend
27
28 111 deliveries at both primary and secondary health facilities, while Community Health Officers
29
30 112 (CHOs), Community Health Extension Workers (CHEWs) and Health Auxiliaries (HA) only
31
32 113 attend deliveries at primary health facilities in the study state.

33
34
35
36
37 114 A two-stage cluster sampling technique was employed to select the health facilities and health
38
39 115 providers in the study LGAs. One primary and one secondary health facility were selected in
40
41 116 each LGA using simple random sampling, except in one LGA without a secondary health
42
43 117 facility. This gave a total of nine health facilities studied (4 secondary and 5 primary health
44
45 118 facilities). There were a total of 244 health providers who could attend deliveries in the study
46
47 119 facilities (176 in the 4 secondary facilities and 68 in the 5 primary facilities).

48
49
50
51
52 120 A sample size of 210 health providers was calculated using the one-sample mean test¹⁴ in Stata.
53
54 121 The parameters used were a change commitment mean of 3.64 ± 0.61 standard deviation (SD),
55
56 122 based on a similar study in Switzerland, as a proxy for organisational readiness.¹⁵ The required
57
58 123 precision was $\pm 5\%$ about the reference mean, with 90% power, and a design effect of 2^{16} for
59
60

1
2 124 the cluster sampling. The number of health providers interviewed at each facility was allocated
3
4 125 proportionately to the total number of health providers per professional type at each health
5
6 126 facility within the LGA. All the available and consenting health providers at each health facility
7
8
9 127 were interviewed until the required numbers were reached. Ethical approvals were obtained
10
11 128 from the Human Research Ethics Committees of the University of the Witwatersrand,
12
13 129 Johannesburg (clearance Number M190658), and Oyo State Ministry of Health (Ref. Number
14
15 130 AD/13/479/1386).

17
18
19 131 Data collection was done using a 112-item tool with 9 sections developed in REDCap.¹⁷ Two
20
21 132 research assistants directly administered the questionnaire. The first part of the instrument
22
23 133 assessed health providers' perceptions of women's rights during childbirth, their awareness of
24
25 134 women mistreatment during childbirth in their health facilities, and their awareness of the RMC
26
27 135 concept. A one-page brief on 'RMC during childbirth' was read to each respondent (see
28
29 136 Additional file 1). The subsequent sections of the questionnaire evaluated providers'
30
31 137 perceptions of individual and organisational readiness for change to RMC practice during
32
33 138 childbirth, and possible associated factors, using standardised tools.

34
35
36
37
38 139 The respondents' perceived organisational readiness and individual readiness for change to
39
40 140 RMC practice were the outcome variables. Organisational readiness for change to RMC
41
42 141 (ORC_{RMC}) was assessed using a 12-item tool with 5 items measuring their change commitment
43
44 142 and 7-items assessing their change efficacy, both on a 5-point Likert agreement scale. The
45
46 143 questions assessing organisational readiness were framed as, "*The health workers in this health*
47
48 144 *facility are...*" Organisational readiness was determined as the mean score of the 12 items on
49
50 145 the scale with a maximum score of 5. Individual readiness for change to RMC (IRC_{RMC}) was
51
52 146 measured using a 6-item tool on a 5-point Likert agreement scale. Questions were framed as "*I*
53
54 147 *am willing to...*". IRC_{RMC} was determined as the mean score of the 6-item scale, also with a
55
56
57
58
59
60

1
2 148 maximum score of 5. When reported as percentages, the mean scores were standardised and
3
4 149 converted to it using the formula $(\text{Mean}-1)/4*100$.

5
6
7 150 For the predictors, Weiner⁶ theorised that employee change valence (how much they value the
8
9 151 change) and informational assessments (perceived adequacy of the resources available to
10 152 implement the change) would positively influence organisational readiness for change. Vakola
11 153 et al⁸ further postulated that employee characteristics such as their job satisfaction and core self-
12 154 evaluation (which assesses their self-esteem, locus of control, emotional stability and
13 155 generalised self-efficacy)¹⁹ would positively influence their individual readiness for change.
14 156 We evaluated the relationship between all of these factors with both IRC_{RMC} and ORC_{RMC} . We
15 157 also proposed that individual provider characteristics such as being younger, having more years
16 158 of experience, and higher monthly income could positively influence IRC_{RMC} and ORC_{RMC} . We
17 159 suggested that health providers' perceptions about women's rights during childbirth, their
18 160 perceived availability and adequacy of resources for RMC implementation and differences in
19 161 their workplace contexts might influence both IRC_{RMC} and ORC_{RMC} . Additional file 2 shows the
20 162 list of the standardised tools used to assess the analytical constructs, together with their
21 163 reliability statistics in our study. The highest Cronbach's alpha was 0.949 for the organisational
22 164 readiness for change tool, while the lowest was 0.575 for the tool assessing providers'
23 165 perception of women's rights.

24
25
26 166 Data analysis was done using the Stata version 15 software. We adjusted for weighting and
27 167 facility-level clustering in all analyses using the Stata 'svy' commands. The mean scores of the
28 168 outcome and predictor variables were determined. Higher mean scores indicate higher IRC_{RMC}
29 169 and ORC_{RMC} . Pearson's correlation was used to evaluate the relationship between IRC_{RMC} and
30 170 ORC_{RMC} .

31
32
33 171 Principal component analysis (PCA) was used to construct separate composite indices for the
34 172 study-specific tools assessing providers' perceptions of women's rights, their awareness of

1
2 173 mistreatment in their facilities, and the availability of resources for RMC practice. Details are
3
4 174 provided in Additional file 3. The first components explained 17.9%, 23.2% and 16.5% of the
5
6 175 variance for each of these scales respectively. These PCA scores were then used in the bivariate
7
8
9 176 and multiple regression analysis as potential predictors.

10
11
12 177 Simple linear regression was done to assess the bivariate relationship between the two
13
14 178 numerical outcomes and the predictor variables. Predictors with p-value ≤ 0.2 were included in
15
16 179 the final multiple regression models for each outcome variable. All predictors were added
17
18 180 simultaneously. Multicollinearity analysis was conducted after the regressions. Predictor
19
20 181 variables with a high variance inflation factor (>10.0) were excluded from the model.
21
22

23 24 182 **1.2.1. Profile Patient and Public Involvement**

25
26
27 183 A prior qualitative study of pregnant women's perceptions of RMC¹⁸ informed this study and
28
29 184 many of the variables assessed. The women had described their experience of childbirth care
30
31 185 and queried the readiness of the health providers to provide such care.
32
33

34 35 186 **1.3. Results**

36 37 187 **1.3.1. Socio-demographic profile**

38
39 188
40 189 Two hundred and twelve health providers completed the survey, with the breakdown by
41
42 190 professional group as shown in Table 1. Their overall mean age was 44.0. The doctors were the
43
44 191 youngest with a mean age of 38.9 while the health auxiliaries were the oldest with a mean age
45
46 192 of 49.3. Overall, the respondents had an average of >15 years post-training work experience,
47
48 193 which included an average of about 6 years working at the study facility.
49
50

51
52 194
53
54
55
56 195
57
58
59 196
60

197 **Table 1: Providers' socio-demographic profile by provider type**

Variables	Doctor n=38	Nurse n=128	CHEW/CHO n=29	Auxiliary n=18	Total n=212
Age					
Mean ± SD	38.9 ± 9.9	44.6 ± 9.4	44.5 ± 9.7	49.3 ± 10.5	44.0 ± 9.9
Median (IQR)	40 (31- 46)	44 (39 - 52)	46 (39 - 50)	52 (40 - 56)	44 (38 - 52)
Sex					
Male	20 (52.3)	0 (0.0)	2 (8.5)	0 (0.0)	22 (10.4)
Female	18 (47.7)	127 (100.0)	26 (91.5)	18 (100.0)	190 (89.6)
Type of health facility					
Primary health facility	3 (8.7)	9 (7.1)	29 (100.0)	18 (100.0)	59 (27.9)
Secondary health facility	34 (91.3)	119 (92.9)	0 (0.0)	0 (0.0)	153 (72.1)
LGA					
Ibadan North	23 (61.9)	61 (47.8)	3 (12.0)	2 (9.7)	89 (42.2)
Ibadan North East	5 (14.6)	14 (11.2)	5 (16.2)	2 (8.8)	26 (12.3)
Ibadan North West	6 (15.6)	20 (15.9)	12 (41.6)	3 (15.0)	41 (19.3)
Ibadan South East	1 (2.9)	1 (0.8)	4 (14.8)	7 (41.8)	14 (6.6)
Ibadan South West	2 (5.1)	31 (24.3)	4 (15.3)	4 (24.7)	42 (19.7)
Health facility in LGA					
Facility 1	1 (2.9)	2 (1.4)	3 (12.0)	2 (9.7)	8 (8.7)
Facility 2	23 (59.6)	59 (46.4)	0 (0.0)	0 (0.0)	82 (38.5)
Facility 3	0 (0.0)	2 (1.2)	5 (16.2)	2 (8.8)	9 (3.7)
Facility 4	5 (44.6)	13 (10.0)	0 (0.0)	0 (0.0)	18 (8.6)
Facility 5	1 (3.6)	1 (1.1)	12 (41.6)	3 (15.0)	17 (8.2)
Facility 6	5 (12.0)	19 (14.8)	0 (0.0)	0 (0.0)	23 (11.1)
Facility 7	0 (0.0)	3 (2.6)	5 (15.3)	4 (24.7)	12 (5.7)
Facility 8	2 (5.1)	28 (21.7)	0 (0.0)	0 (0.0)	30 (13.9)
Facility 9	1 (2.3)	1 (1.0)	4 (14.8)	7 (41.8)	13 (6.6)
Years of experience					
Mean ± SD	10.4 ± 7.7	18.2 ± 9.9	10.5 ± 7.5	13.6 ± 11.0	15.4 ± 9.9
Median (IQR)	10 (3 - 14)	18 (11 - 25)	8 (4 - 17)	9 (6 - 19)	14 (7 - 23)
Years working in study facility					
Mean ± SD	3.2 ± 3.5	8.2 ± 6.0	2.7 ± 1.9	3.7 ± 2.0	6.0 ± 5.6
Median (IQR)	2 (0.5 - 5)	7 (4 - 11)	3 (1 - 4)	4 (3 - 5)	5 (2 - 10)
Income (in USD)					
Median (IQR)	658 (526 - 921)	500 (289 - 553)	270 (132 - 395)	99 (26 - 191)	463 (263 - 605)

198 Note: IQR – Interquartile range

199 **1.3.2. RMC- women's rights and mistreatment and needed resources**

200 Overall, 35.9% of the providers had heard of RMC. This consisted mainly of the doctors (60%)

201 and the least (19.1%) being the health auxiliaries. Nonetheless, after RMC had been explained

202 to them, 70% of all the providers agreed that RMC could be implemented in their facilities.

203 As shown in Figure 1, 72.9% of the health providers stated that women delivering in their

204 facility were always denied a birth companion, 63.9% were aware of women not being allowed

205 to decide their birth position, and 36.7% had witnessed restrictions on mobility during labour.

206 Correspondingly, only 19.9% of health providers believed that women should always have the

207 right to decide their birth position, 38.7% agreed that women could be mobile during labour,

208 and 50.7% supported women having a birth companion (Figure 1). Only 20.4% accepted that
209 women should always have unrestricted access to their hospital records.

210 **Figure 1: Forms of mistreatment and perceived providers' rights to women during childbirth**

211 Figure 2 indicates providers' perceptions of the availability of essential 18 WHO-recommended
212 resources for implementing RMC. The least available of the resources were RMC educational
213 materials (7.7%), followed by guidelines (8.2%). Approximately 10-15% of the providers
214 agreed to the availability of private spaces to support birth companions, in-service training on
215 RMC, suggestion boxes, and adequately trained staff on RMC. However, 63.0% of them agreed
216 to having curtains and screens for privacy during childbirth.

217 **Figure 2: Provider perceptions on availability of WHO-recommended resources for RMC** 218 **implementation**

219 The mean scores for all the study scales are shown in Table 2. The health providers were well
220 aware of the mistreatment of women during childbirth in their health facilities across the 12
221 items with a high mean score of 3.9 ± 0.5 out of a maximum of 5. However, the mean score of
222 3.9 ± 0.5 out of 5 also indicates high acceptance of the rights they believe women should always
223 be granted during childbirth.

224 **1.3.3. Individual and organisational readiness for change to RMC practice**

225 In assessing organisational readiness for change to RMC, the health providers scored high on
226 their commitment to the change and their change efficacy, which is their perceived ability to
227 implement the change (Table 2). These two constructs were strongly positively correlated (ρ :
228 0.830, $p < 0.001$). Combined, this gave a high mean organisational readiness for change
229 (ORC_{RMC}) score of 4.01 ± 0.9 , which is 75.3% of the maximum obtainable mean score of 5. The
230 health providers had even higher individual readiness to change (IRC_{RMC}), with a mean score
231 of 4.23 ± 0.6 , 80.8% of the maximum. Organisational readiness was only moderately but
232 significantly correlated with individual readiness for change to RMC (ρ : 0.407, $p < 0.001$).

233 **Table 2: Average provider perceptions for different study scales (n=212)**

Analytical Category	Scale	Mean \pm SD	95% CI
Outcomes	Change commitment	4.05 \pm 1.0	3.8– 4.3
	Change efficacy	3.96 \pm 0.9	3.6 – 4.3
	Organisational readiness for change (ORC _{RMC})	4.01 \pm 0.9	3.7 – 4.3
	Individual readiness for change (IRC _{RMC})	4.23 \pm 0.6	4.1 – 4.4
Predictors	Awareness of mistreatment during childbirth in their facilities	3.90 \pm 0.5	3.7 – 4.1
	Women's rights during childbirth	3.85 \pm 0.5	3.8 - 4.0
	Change valence	4.46 \pm 0.8	4.3 – 4.6
	Informational assessments	3.30 \pm 0.7	3.1 - 3.4
	Availability of resources to implement RMC in their facilities	2.70 \pm 0.6	2.5 – 2.9
	Core self-evaluation	4.34 \pm 0.5	4.3 – 4.4
	Job satisfaction	3.70 \pm 0.6	3.6 – 3.8

234

235 **1.3.4. Change valence and informational assessments**

236 The health providers scored high on how much they value the change to RMC, with a mean of
 237 4.46 \pm 0.8 out of 5 (Table 2). They, however, scored lower in their informational assessments
 238 ((3.30 \pm 0.7), which describes their perceptions on the adequacy of the available resources to
 239 implement the change to RMC practice in their facilities. The providers' mean score for the
 240 availability of the WHO-recommended resources to implement RMC was even lower
 241 (2.70 \pm 0.6), 42.5% of the maximum. There was a mild but significantly positive relationship
 242 between their perceived availability and adequacy of the resources needed to implement RMC
 243 in their facilities, (ρ : 0.263, p =0.0001). Notwithstanding these perceived deficiencies, the
 244 health providers indicated relatively high levels of job satisfaction and core self-evaluation- that
 245 is, they had high self-esteem, locus of control, emotional stability and generalised self-efficacy
 246 (Table 2).

247 **1.3.5. Factors associated with individual readiness for change (IRC_{RMC}) and**
 248 **organisational readiness for change (ORC_{RMC}) to RMC practice**

249

250 Table 3 shows the bivariate and multiple regression analysis for IRC_{RMC}, while Table 4 shows
 251 the analysis for ORC_{RMC}. The health providers' change valence and informational assessments
 252 were significantly associated with individual readiness for change in the multiple regression
 253 analysis, increasing IRC_{RMC} scores by 0.45 and 0.07 respectively. Doctors and nurses had

1
2 254 significantly higher IRC_{RMC} than health assistants, in the bivariate analysis but this was no
3
4 255 longer significant after adjusting for other covariates.

6
7 256 IRC_{RMC} varied significantly between health providers from different health facilities in the
8
9 257 bivariate analysis but this was no longer the case in the multiple regression analysis. None of
10
11 258 the known predictors of individual readiness for change (providers' job satisfaction and core
12
13 259 self-evaluation), nor the newly proposed ones (perceived rights of women, years of experience,
14
15 260 income), was significantly associated with IRC_{RMC} .

18
19
20 261

21
22
23 262

24
25
26 263

27
28
29 264

30
31
32 265

33
34
35 266

36
37
38 267

39
40
41 268

42
43
44 269

45
46
47 270

48
49
50 271

51
52
53 272

54
55
56 273

274 **Table 3: Analysis of factors associated with health providers' IRC_{RMC}**

Covariates	Simple linear regression			Multiple linear regression		
	Crude Coeff.	95%CI	p-value	Adjusted Coeff.	95%CI	p-value
Health providers' age	-0.003	-0.01 - 0.007	0.497			
Sex						
Female	Ref	-	-	Ref	-	-
Male	-0.21	-0.02 - 0.44	0.065	-0.14	-0.84 - 1.13	0.743
Study Local Government Area						
Ibadan North	Ref	-	-			
Ibadan North East	0.02	-0.54 - 0.58	0.946			
Ibadan North West	-0.22	-0.47 - 0.03	0.078			
Ibadan South East	-0.45	-0.52 - 0.37	<0.001			
Ibadan South West	-0.09	-0.32 - 0.14	0.383			
Health facility in LGA						
Facility 1	0.19	0.10 - 0.19	<0.001	0.35	-0.01 - 0.70	0.053
Facility 2	Ref	-	-	Ref	-	-
Facility 3	-0.53	-0.53 - 0.53	<0.001	-0.06	-0.39 - 0.27	0.675
Facility 4	0.29	0.29 - 0.29	<0.001	0.07	-0.05 - 0.18	0.218
Facility 5	-0.37	0.37 - -0.37	<0.001	-0.23	-0.51 - 0.04	0.087
Facility 6	-0.06	-0.06 - -0.06	<0.001	0.04	-0.07 - 0.14	0.423
Facility 7	0.12	0.12 - 0.12	<0.001	0.22	-0.13 - 0.54	0.175
Facility 8	-0.10	-0.10 - -0.10	<0.001	0.0002	-0.09 - 0.09	0.970
Facility 9	-0.42	-0.42 - -0.42	<0.001	0.03	-0.30 - 0.35	0.844
Providers' type of health facility						
Primary health facility	Ref	-	-			
Secondary health facility	0.23	0.56 - 0.09	0.135			
Professional cadre						
Doctor	0.43	0.04 - 0.83	0.036	-0.13	-0.46 - 0.19	0.360
Nurse	0.37	0.05 - 0.70	0.030	Ref	-	-
CHEW/ CHO	0.08	-0.06 - 0.21	0.233	-0.19	-0.63 - 0.24	0.329
Health Assistant/ Aide	Ref	-	-	-0.16	-0.50 - 0.18	0.296
Income (in USD/ 1000)	-2.36	-0.06 - 5.28	0.097	0.05	-0.03 - 0.13	0.187
Years of professional experience	0.01	0.004 - 0.03	0.106	0.004	-0.02 - 0.03	0.644
Years of experience in health facility	0.004	-0.02 - 0.031	0.727			
Awareness of mistreatment of women	0.01	-0.04 - 0.05	0.712			
Perceived women's rights during childbirth	0.04	-0.05 - 0.11	0.357			
Ever heard of RMC (n=170)						
Yes	-0.02	-0.33 - 0.30	0.883			
No	Ref	-	-			
Perception of RMC being implementable						
Agreed	0.10	-0.34 - 0.53	0.620			
Indifferent	Ref	-	-			
Disagreed	0.06	-0.46 - 0.58	0.794			
Change valence (value for RMC practice)	0.45	0.19 - 0.71	0.005	0.40	0.11 - 0.70	0.015
RMC Informational assessment	0.07	0.15 - 0.42	0.001	0.07	0.008 - 0.13	0.032
Provider perceptions on available resources	0.03	-0.02 - 0.09	0.182			
Provider job satisfaction	0.010	-0.03 - 0.22	0.105	0.004	-0.13 - 0.14	0.953
Provider core self-evaluation	0.25	0.01 - 0.50	0.055	0.09	-0.22 - 0.39	0.513
*Male # Doctor				0.15	-1.01 - 1.31	0.765
Constant				1.76	1.37 - 2.14	<0.001

n=212; R²= 0.4363; p<0.001

275 Note: Ref: means the reference category; 95%CI: 95% Confidence Interval; Predictors with p-value ≤0.2 from the simple
 276 linear regression analysis were included in the multiple regression model; The Mean variance inflation factor vif for the
 277 multiple regression model is =2.33, significant p-values in bold. Male # Doctor- Interaction between gender and profession

278

1
2 279 Change valence and informational assessments were also significantly associated with
3
4 280 organisational readiness for change (Table 4). A unit increase in the health providers' change
5
6 281 valence and informational assessments increased their perceived ORC_{RMC} by 0.47 and 0.43
7
8 282 units respectively, after adjusting for other covariates. Also, each additional 10 years of work
9
10 283 experience significantly increased ORC_{RMC} by 0.08 and each \$1000 increase in providers'
11
12 284 personal income increased their perceived ORC_{RMC} by 0.08. There were significant varied
13
14 285 associations (positively or negatively) between the health providers' facility of practice and
15
16 286 their ORC_{RMC} in relation to the reference facility. The only exception was for Facility 4, a
17
18 287 secondary health facility in one of the LGAs.
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

300 **Table 4: Analysis of factors associated with health providers' ORC_{RMC}**

301

Covariates	Simple linear regression			Multiple regression		
	Crude Coeff.	95%CI	p-value	Adjusted Coeff.	95%CI	p-value
Health providers' age	-0.01	-0.02 – 0.02	0.916			
Sex						
Female	Ref	-	-	Ref	-	-
Male	-0.21	-0.09 – 0.50	0.146	0.15	-0.11 – 0.41	0.213
Study Local Government Area						
Ibadan North	Ref	-	-			
Ibadan North East	0.34	-0.26 – 0.94	0.226			
Ibadan North West	-0.22	-0.42 – 0.02	0.034			
Ibadan South East	-0.46	-0.59 – 0.33	<0.001			
Ibadan South West	-0.27	-1.21 – 0.66	0.510			
Health facility in LGA						
Facility 1	0.43	0.43 – 0.43	<0.001	0.38	0.30 – 0.46	<0.001
Facility 2	Ref	-	-	-	-	-
Facility 3	-0.23	-0.23 – -0.23	<0.001	0.24	0.12 – 0.35	0.002
Facility 4	0.65	0.65 – 0.65	<0.001	0.16	-0.03 – 0.35	0.087
Facility 5	-0.09	-0.09 – -0.09	<0.001	-0.29	-0.40 – -0.19	<0.001
Facility 6	-0.24	-0.24 – -0.24	<0.001	-0.11	-0.16 – -0.07	0.001
Facility 7	0.63	0.63 – 0.63	<0.001	0.56	0.54 – 0.57	<0.001
Facility 8	-0.54	-0.54 – -0.54	<0.001	-0.41	-0.47 – -0.36	<0.001
Facility 9	-0.41	-0.41 – -0.41	<0.001	0.11	0.02 – 0.20	0.024
Providers' type of health facility						
Primary health facility	Ref	-	-			
Secondary health facility	0.09	-0.68 – 0.50	0.717			
Professional cadre						
Doctor	0.31	-0.50 – 1.12	0.391			
Nurse	-0.07	-0.88 – 0.75	0.857			
CHEW/ CHO	0.09	-0.38 – 0.56	0.667			
Health Assistant/ Aide	Ref	-	-			
Income (in USD/ 1000)	0.26	-0.05 – 0.56	0.083	0.08	0.02 – 0.15	0.021
Years of professional experience /10 years	0.05	0.02 – 0.3	0.034	0.08	0.01 – 0.2	0.024
Years of experience in health facility	-0.004	-0.03 – 0.02	0.678			
Awareness of mistreatment of women	0.02	-0.06 – 0.09	0.650			
Perceived women's rights during childbirth	0.02	-0.12 – 0.16	0.767			
Ever heard of RMC (n=170)						
Yes	0.10	-0.27 – 0.46	0.553			
No	Ref	-	-			
Perceptions of RMC being implementable						
Agreed	0.60	-0.02 – 1.23	0.056	0.19	-0.08 – 0.45	0.148
Indifferent	Ref	-	-	Ref	-	-
Disagreed	-0.09	-0.76 – 0.58	0.765	-0.12	-0.60 – 0.36	0.570
Change valence (value for RMC practice)	0.74	0.47 – 1.01	<0.001	0.47	0.21 – 0.74	0.004
RMC Informational assessment	0.72	0.40 – 1.05	0.001	0.43	0.22 – 0.63	0.002
Provider perceptions on available resources	-0.002	-0.25 – 0.25	0.984			
Provider job satisfaction	0.23	-0.08 – 0.55	0.125	0.05	-0.10 – 0.20	0.477
Provider core self-evaluation	0.15	-0.38 – 0.68	0.521			
Constant				0.06	-1.28 – 1.41	0.915

n=212; R²= 0.6016; p<0.001

302 Note: Ref: means the reference category; CI: 95% Confidence Interval; Predictors with a p-value ≤ 0.2 from the bivariate
 303 analysis (simple linear regression) were included in the multiple regression model; The Mean variance inflation factor vif
 304 for the multiple regression model is =1.55, Significant p-values in bold.

305

1.4. Discussion

This is the first study to explore individual and organisational readiness for change to RMC practice, and associated predictors. The health providers had a high level of awareness of mistreatment to women but also a high general acceptance of women's rights during childbirth. However, there were some rights, such as being allowed a birth companion, that few providers regarded as essential, and these were then seldom practised. Nonetheless, the health providers scored high in their perceived IRC_{RMC} and ORC_{RMC} . IRC_{RMC} and ORC_{RMC} were only moderately correlated in this analysis. Higher change valence and informational assessment of the adequacy of resources increased not only ORC, as has been found previously,^{20,21} but also IRC_{RMC} . Job satisfaction and the providers' core self-evaluation, which have been shown to influence IRC,^{8,22} had no statistically significant effect on IRC_{RMC} in this study. The provider's years of work experience, their personal income (individual characteristics) and their health facility of practice (a workplace characteristic) significantly influenced ORC_{RMC} .

This study has provided an understanding of the state of readiness for change to RMC practice, eliminating it as a possible implementation problem for RMC practice in the study setting. It has established that IRC_{RMC} and ORC_{RMC} have a positive influence on each other. This study has further confirmed the critical role of change valence and informational assessments in increasing both organisational and individual readiness for change.

The study findings however failed to establish a significant relationship between the providers' readiness for a change to RMC and their perceptions of women's rights during childbirth. Respectful maternity care is premised on the fundamental human rights of women to receive dignified care.²³ It would have been expected that provider perceptions of women's rights would be positively associated with their readiness for change. The relationship was in the correct direction but not statistically significant. The provider's low perceptions of resource availability to implement RMC did also not significantly reduce their IRC_{RMC} and ORC_{RMC} .

1
2 331 This study had some limitations. It was a relatively small study and its geographical extent was
3
4 332 limited to one Metro in Nigeria which may not be representative of similar facilities and
5
6 333 providers in other regions of Nigeria. Tertiary health facilities were not included because there
7
8 334 was only one tertiary health facility serving populations across the five LGAs studied. Social
9
10 335 desirability bias may have influenced some of the providers' responses positively to the
11
12 336 availability of resources and their perception of women's rights during childbirth. To mitigate
13
14 337 this, the data collectors stressed the academic purpose of the research to the providers when
15
16 338 obtaining informed consent. Limited awareness of RMC, as found in this study, may affect an
17
18 339 accurate assessment of readiness for change. We attempted to address this by educating the
19
20 340 providers on RMC concepts before assessing their readiness for change to RMC practice.
21
22
23
24
25 341 Health providers cannot truly be ready to implement RMC if they do not support certain
26
27 342 women's rights during childbirth. This would result in persistent mistreatment and may prevent
28
29 343 a positive change to RMC practice. The most common forms of mistreatment to women during
30
31 344 childbirth in the study health facilities were being denied birth companions, not being allowed
32
33 345 to decide on birth position, and being denied mobility in labour. All three forms of mistreatment
34
35 346 were also reported by Tanzanian women in a qualitative study of the perspectives of mothers
36
37 347 and fathers on mistreatment during childbirth.²⁴ Several other studies have reported these forms
38
39 348 of mistreatment experienced by women during childbirth.^{25–28} According to the WHO,^{29,30}
40
41 349 having a birth companion during labour provides emotional support, reduces labour pain and
42
43 350 strengthens the woman's capability to deliver. The WHO has also recommended that women
44
45 351 are supported to deliver in their preferred birth position because alternative birth positions, such
46
47 352 as standing to deliver, are safe and may result in shorter labour from better foetal alignment.^{27,29}
48
49 353 It has also been reported that mobility during the first stage of labour is safe.²⁷ Denying women
50
51 354 the autonomy, or not respecting women's choices during childbirth without a justifiable medical
52
53 355 reason, constitutes mistreatment that negatively affects their overall childbirth experience.³¹
54
55
56
57
58
59
60

1
2 356 The health providers perceived that women should always have the right to full information
3
4 357 about their care and to receive their care in privacy. Unfortunately, many may not practice it
5
6 358 for several reasons, including unconscious behaviour, an abusive work culture, and perceived
7
8 359 excessive workload amongst others.³² About 33% of maternity care providers in Western Kenya
9
10 360 attested that they do not often give explanations before conducting procedures on women during
11
12 361 childbirth, and 73% do not wait to obtain consent before conducting these examinations.³² This
13
14 362 is similar to the inconsistent support for women's right to autonomy found among Australian
15
16 363 midwives and doctors.³³ They confirmed their support for women's autonomy, but override
17
18 364 women's decisions sometimes on safety reasons, claiming full accountability for every
19
20 365 pregnancy outcome. Women should be included when safety decisions are being made during
21
22 366 childbirth. When this is not done, women may conclude it is an abuse of their rights. Tanzanian
23
24 367 women related their abusive maternity care experiences as a deviation from their basic human
25
26 368 rights.³⁴ Hence, advocating for women's rights among health providers should be a key
27
28 369 component of RMC-promoting interventions.
29
30
31
32
33
34
35 370 Nonetheless, the health providers scored high in their perceived IRC_{RMC} and ORC_{RMC} . Few
36
37 371 studies had reported the overall organisational readiness for implementing change (ORIC) in
38
39 372 health programmes as mean scores using the ORIC tool. Many either report the mean change
40
41 373 commitment and change efficacy as individual scores,¹⁵ or as total scores.³⁵ The ORC_{RMC} score
42
43 374 in our study was higher than the average of the change commitment and change efficacy scores
44
45 375 found when the nurse-reported ORC for policy change in acute care hospitals in Switzerland
46
47 376 was assessed.¹⁵ There was no comparable study of individual readiness for change using the
48
49 377 same instrument applied in health industry. A scoping review to explore the nature and extent
50
51 378 of literature published on individual readiness for change in the health sector yielded no study
52
53 379 found in health.³⁶
54
55
56
57
58
59
60

1
2 380 IRC_{RMC} and ORC_{RMC} in our study were significantly positively correlated. Thus, a positive
3
4 381 increase in IRC_{RMC} by strengthening its facilitating factors should also reflect in increased
5
6 382 ORC_{RMC}. This is similar to the postulations by Weiner in his theory where he stated that
7
8
9 383 “*Organisational readiness is likely to be highest when organisational members not only want*
10
11 384 *to implement an organisational change but also feel confident that they can do so*” (page 3).⁶

12
13
14 385 Weiner theorised that organisational readiness was most strongly influenced by change valence
15
16 386 and informational assessments.⁶ The health providers’ change valence positively influenced
17
18 387 both their IRC_{RMC} and ORC_{RMC} significantly in our study. Change valence also positively and
19
20 388 significantly influenced organisational readiness for change amongst employees of a private
21
22 389 hospital changing to a tertiary hospital.³⁷ It also strongly correlated with individual readiness
23
24 390 for change in an automobile industry.³⁸ There has been limited assessments of individual
25
26 391 readiness for change in health-related industries.

27
28
29
30
31 392 Informational assessment is the perceived adequacy of the available resources such as the
32
33 393 equipment, expertise, skills, and time, needed to implement the change. Informational
34
35 394 assessments also significantly influenced both IRC_{RMC} and ORC_{RMC} in this analysis.
36
37 395 Informational assessment of their perceived resource adequacy was found to be positively and
38
39 396 significantly correlated with their perceived resource availability in this study. This suggests
40
41 397 that if providers’ perception of resource availability is high, they would be readier for a change
42
43 398 to RMC practice. However, the providers had a low perception of the availability of
44
45 399 recommended resources for RMC implementation in our study setting. This may have
46
47 400 explained their fairly low perceived resource adequacy.

48
49
50
51
52 401 Thus, additional resource requirements are critical drivers of RMC implementation.⁶ For
53
54 402 example, only 9% of the health providers agreed that facilities to support birth companions
55
56 403 were available. This would include a private space achievable with the use of curtains. In an
57
58 404 observational study of childbirths across four countries, Nigeria had the lowest proportion of

1
2 405 women (6.9%) in which curtains were used to ensure privacy.³⁹ This is a challenge that may
3
4 406 prevent Nigerian women from receiving RMC as there is limited funding to the Nigerian health
5
6 407 system to provide these essential RMC resources. There is a need to identify cost-effective
7
8
9 408 strategies to address these system challenges.

10
11
12 409 ORC_{RMC} was found to be significantly higher among health providers with longer years of work
13
14 410 experience. They are a population to target in RMC-promoting interventions. The nurses' years
15
16 411 of work experience also positively influenced their change commitment, one of the measures
17
18 412 of organisational readiness, in Switzerland's acute care hospitals.¹⁵ The providers' workplace
19
20 413 setting, as indicated by their health facility of practice significantly influenced their perceived
21
22 414 ORC_{RMC}. This was positive for most of the primary health care facilities across the LGAs, and
23
24 415 was significantly negative for the two secondary health facilities studied. Interestingly, both the
25
26 416 primary and secondary health facilities in the Ibadan North-west LGA were significantly
27
28 417 associated with a decreased ORC_{RMC}. According to the literature, the workplace contextual fit
29
30 418 is critical to providers' readiness for change to RMC as it informs the adaptability of the local
31
32 419 context to the globally defined RMC practice, the quality of the implementation, and whether
33
34 420 expected RMC implementation outcomes will be achieved.⁴⁰⁻⁴² There is the need to
35
36 421 qualitatively explore which contextual factors within the health facilities are the most critical
37
38 422 barriers to a successful implementation of RMC practice during childbirth.

45 423 **1.5. Conclusions**

46 424 The three most common forms of mistreatment during childbirth noted by health providers
47
48 425 corresponded with the low recognition of these as rights that women should always receive.
49
50 426 Our study confirmed the relevance of the organisational and individual readiness for change
51
52 427 constructs to the RMC literature and should prompt more studies on this topic. It is noteworthy
53
54 428 that the health providers in our study perceived themselves and their organisations to be ready
55
56 429 for a change to RMC practice. It would be important to verify in future research if readiness for
57
58
59
60

1
2 430 change significantly facilitated the implementation of RMC interventions. The main
3
4 431 influencing factors of both IRC_{RMC} and ORC_{RMC} scores in our analysis were a high valuation
5
6 432 of the change (change valence) and the perceived adequacy of resources necessary to implement
7
8
9 433 the change. Longer serving providers may be a readier population to target during RMC
10
11 434 implementation either as champions to lead a change to RMC practice. Workplace contexts
12
13 435 could significantly influence ORC_{RMC} and should be explored before the implementation of
14
15
16 436 RMC interventions.

17
18
19 437 **Ethics approval and consent to participate:** The research was conducted in accordance
20
21 438 with the Declaration of Helsinki. Ethical approvals were obtained from the Human Research
22
23 439 Ethics Committees (HRECs) of the University of the Witwatersrand, Johannesburg (clearance
24
25 440 Number M190658), and the Oyo State Ministry of Health (Ref. Number AD/13/479/1386). A
26
27
28 441 written consent to continue the interview was obtained from the respondents. It was a consent
29
30 442 form that explained the purpose of the research, and the respondents were asked if they agree
31
32
33 443 to continue with the research or not. The form was filled using the REDCap software. For
34
35 444 anonymity, the facilities were referred to by numbers rather than names. The primary and
36
37 445 secondary health facilities were designated with odd and even numbers respectively.
38
39 446 Subsequent numbers in sequence are located in the same LGA. Respondents were given a small
40
41 447 jotter with brief information on respectful maternity care that costs 0.32USD at ₦380=1USD
42
43
44 448 each on completion of the survey in appreciation of their time and to further educate them.
45
46 449 There were no inducements given before participation. A transparent and complete reporting
47
48
49 450 of the research was done guided by the STROBE's checklist.⁴³.

50
51
52 451 **Availability of data and materials:**

53
54
55 452 All dataset generated and analysed in the current study are available from the Figshare database
56
57 453 accessible at <https://figshare.com/s/4c3a01159121780b77da>. The doi is
58
59 454 10.6084/m9.figshare.19757329. Also the datasets used and analysed during the current study

1
2 455 and on which the study findings and conclusions are based are available with the corresponding
3
4 456 author and will be shared on reasonable request.
5
6

7 457 **Competing Interests**

8
9 458 The authors declare that they have no competing interests
10

11 459 **Funding**

12 460 This research was supported by the Consortium for Advanced Research Training in Africa
13
14 461 (CARTA). CARTA is jointly led by the African Population and Health Research Centre and
15
16 462 the University of the Witwatersrand and funded by the Carnegie Corporation of New York
17
18 463 (Grant No G-19-57145), Sida (Grant No:54100113), Uppsala Monitoring Center, Norwegian
19
20 464 Agency for Development Cooperation (Norad), and by the Wellcome Trust [reference no.
21
22 465 107768/Z/15/Z] and the UK Foreign, Commonwealth & Development Office (No Grant
23
24 466 Number), with support from the Developing Excellence in Leadership, Training and Science in
25
26 467 Africa (DELTAS Africa) programme (No Grant Number). The statements made and views
27
28 468 expressed are solely the responsibility of the Fellow. For the purpose of open access, the author
29
30 469 has applied a CC BY public copyright licence to any 'author accepted' manuscript version
31
32 470 arising from this submission. The funders only provided the funding for the research. They
33
34 471 played no role in the conceptualisation, design and conduct of the research nor in the data
35
36 472 analysis, interpretation and development of the manuscript for publication.
37
38
39
40
41
42

43 473 **Author Contributions**

44 474 OTE conceptualised the study, designed the study, acquired and adapted the tools to the study
45
46 475 and obtained the ethical approvals. She was the principal investigator who conducted the data
47
48 476 collection and supervised the research assistants. She analysed the data, and wrote the draft and
49
50 477 final manuscripts for publication.
51
52
53 478 SM contributed to the design of the study and the finalisation of the tools. She also significantly
54
55 479 contributed to the revision of the draft manuscript and approved the final manuscript for
56
57 480 publication.
58
59
60

1
2 481 DB contributed significantly to the design of the study, the finalisation of the tools and the data
3
4 482 analysis. He significantly revised and contributed significant intellectual content to the draft
5
6 483 manuscript and approved the final version of the manuscript for publication.
7
8

9 484 **Acknowledgements**

10
11
12
13 485 I acknowledge the contributions of Dr Tunde Adedokun, Dr Joshua Akinyemi and Professor
14
15 486 Folusho Owotade for their inestimable advice and support with the data analysis. I also
16
17 487 recognise and appreciate all the health providers who completed the survey despite their hectic
18
19
20 488 schedules. The second author acknowledges the funding support by the South African Medical
21
22 489 Research Council's Mid-Career Scientist Award.
23
24

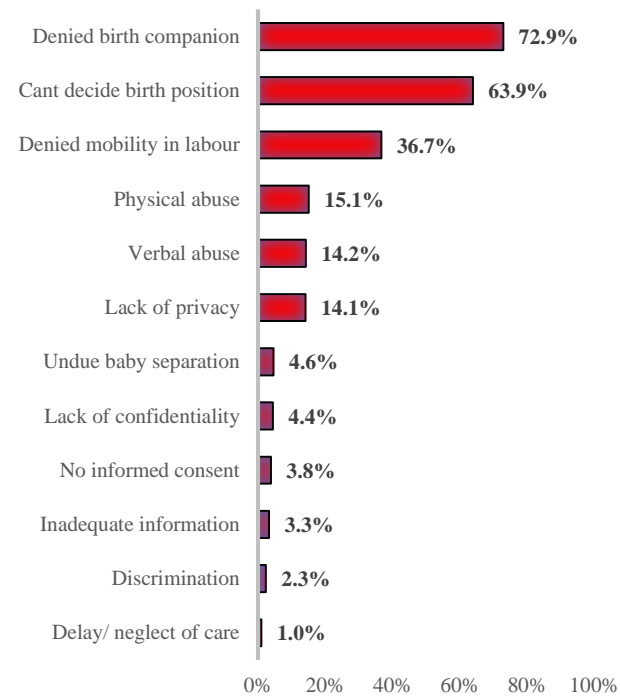
25 490 **References**

- 26
27 491 1. World Health Organization. WHO recommendations: Intrapartum care for a positive
28 492 childbirth experience [Internet]. Geneva, Switzerland; 2018 [cited 2018 Aug 8]. 1–200
29 493 p. Available from: [https://www.who.int/reproductivehealth/publications/intrapartum-](https://www.who.int/reproductivehealth/publications/intrapartum-care-guidelines/en/)
30 494 [care-guidelines/en/](https://www.who.int/reproductivehealth/publications/intrapartum-care-guidelines/en/)
31
32 495 2. Williams CR, Meier BM. Ending the abuse: the human rights implications of obstetric
33 496 violence and the promise of rights-based policy to realise respectful maternity care. *Sex*
34 497 *Reprod Heal Matters*. 2019 Jan 1;27(1).
35
36 498 3. Denny E. Mini commentary: Respectful maternity care needs to be the standard for all
37 499 women worldwide. *BJOG* [Internet]. 2018 [cited 2018 May 10];125(8):943. Available
38 500 from: <https://pubmed.ncbi.nlm.nih.gov/29230930/>
39
40 501 4. Downe S, Lawrie TA, Finlayson K, Oladapo OT. Effectiveness of respectful care
41 502 policies for women using routine intrapartum services : a systematic review. *Reprod*
42 503 *Health*. 2018;15(23):1–13.
43
44 504 5. Holt DT, Armenakis AA, Harris SG, Feild HS. Toward a Comprehensive Definiton of
45 505 Readiness for Change: A Review of Research and Instrumentation. *Res Organ Chang*
46 506 *Dev* [Internet]. 2015 [cited 2019 May 23];16:289–336. Available from:
47 507 <https://www.emeraldinsight.com/doi/abs/10.1016/S0897-3016%2806%2916009-7>
48
49 508 6. Weiner BJ. A theory of organizational readiness for change. *Implement Sci* [Internet].
50 509 2009 [cited 2018 Aug 9];4(67):1–9. Available from:
51 510 <http://www.implementationscience.com/content/4/1/67>
52
53 511 7. Lehman WEK, Greener JM, Simpson DD. Assessing organizational readiness for
54 512 change. *J Subst Abuse Treat*. 2002;22(4):197–209.
55
56 513 8. Vakola M. What's in there for me? Individual readiness to change and the perceived
57 514 impact of organizational change. *Leadersh Organ Dev J*. 2014;35(3):195–209.
58
59 515 9. Miake-Lye IM, Delevan DM, Ganz DA, Mittman BS, Finley EP. Unpacking
60

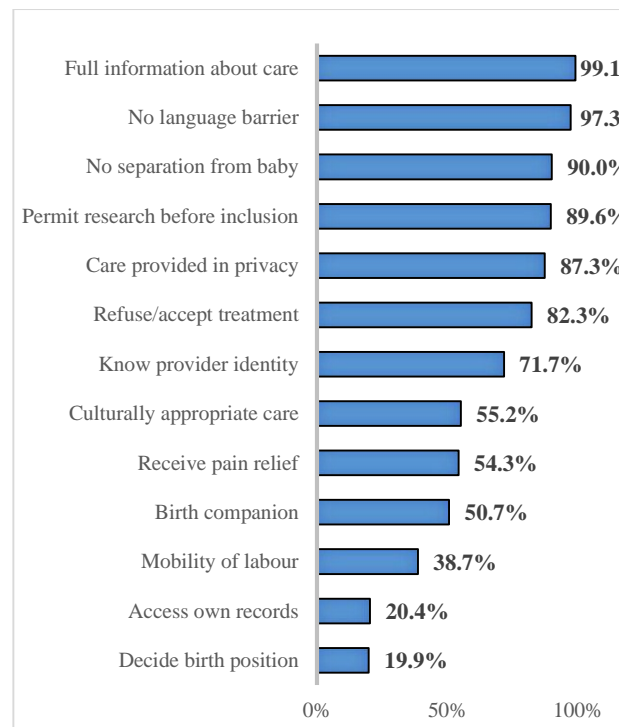
- 1
2 516 organizational readiness for change: An updated systematic review and content
3 517 analysis of assessments. *BMC Health Serv Res.* 2020;20(1):1–13.
- 4
5 518 10. Haffar M, Al-Karaghoul W, Irani Z, Djebarni R, Gbadamosi G. The influence of
6 519 individual readiness for change dimensions on quality management implementation in
7 520 Algerian manufacturing organisations. *Int J Prod Econ* [Internet]. 2019 [cited 2021
8 521 Aug 31];207:247–60. Available from: <http://dx.doi.org/10.1016/j.ijpe.2016.08.024>
- 9
10 522 11. Warren CE, Ndwiga C, Sripad P, Medich M, Njeru A, Maranga A, et al. Sowing the
11 523 seeds of transformative practice to actualize women’s rights to respectful maternity
12 524 care: Reflections from Kenya using the consolidated framework for implementation
13 525 research. *BMC Womens Health.* 2017;17(1):1–18.
- 14
15 526 12. Ratcliffe HL, Sando D, Lyatuu GW, Emil F, Mwanyika-sando M, Chalamilla G, et al.
16 527 Mitigating disrespect and abuse during childbirth in Tanzania : an exploratory study of
17 528 the effects of two facility-based interventions in a large public hospital. *Reprod Health*
18 529 [Internet]. 2016 [cited 2018 Sep 27];13(79):1–13. Available from:
19 530 <http://dx.doi.org/10.1186/s12978-016-0187-z>
- 20
21 531 13. Kujawski SA, Freedman LP, Ramsey K, Mbaruku G, Mbuyita S, Moyo W, et al.
22 532 Community and health system intervention to reduce disrespect and abuse during
23 533 childbirth in Tanga Region, Tanzania: A comparative before-and-after study. *PLoS*
24 534 *Med.* 2017;14(7):1–16.
- 25
26 535 14. Stata Software. Power and Sample size: Power onemean — Power analysis for a one-
27 536 sample mean test [Internet]. 2019. p. 1–15. Available from: file:///E:/PhD
28 537 Folder/Respectful maternity care/Very Important for Current PHD
29 538 Research/psspoveronemean (1).pdf
- 30
31 539 15. Sharma N, Geest S De, Herrnschmidt J, Claes V, Bachnick S, Simon M.
32 540 Organizational readiness for implementing change in acute care hospitals : An analysis
33 541 of a cross - sectional , multicentre study. *J Adv Nurs.* 2018;74(12):2798–808.
- 34
35 542 16. Glen S. Design Effect: Definition, Examples [Internet]. *Statistics How To.* 2015 [cited
36 543 2019 Apr 1]. Available from:
37 544 <https://www.statisticshowto.datasciencecentral.com/design-effect/>
- 38
39 545 17. Hameed W, Uddin M, Avan BI. Are underprivileged and less empowered women
40 546 deprived of respectful maternity care: Inequities in childbirth experiences in public
41 547 health facilities in Pakistan. *PLoS One.* 2021;16(4 April):1–17.
- 42
43 548 18. Esan OT, Maswime S, Blaauw D. A qualitative inquiry into pregnant women’s
44 549 perceptions of respectful maternity care during childbirth in Ibadan Metropolis,
45 550 Nigeria. *Sex Reprod Heal Matters.* 2022;30(1):1–17.
- 46
47 551 19. Judge TA, Erez A, Bono J., Thoresen CJ. The Core Self-Evaluation Scale (CSES):
48 552 Development of a Measure. *Pers Psychol.* 2003;56:303–31.
- 49
50 553 20. Shea CM, Jacobs SR, Esserman DA, Bruce K, Weiner BJ. Organizational readiness for
51 554 implementing change : a psychometric assessment of a new measure. *Implement Sci.*
52 555 2014;9(7):1–15.
- 53
54 556 21. Phillips JE. Effects of Change Valence and Informational Assessments on
55 557 Organizational Readiness for Change T [Internet]. Walden University, Cape Town;
56 558 2017 [cited 2018 Sep 27]. Available from:
57 559 <https://scholarworks.waldenu.edu/dissertations/4016/>

- 1
2 560 22. Win NN, Chotiyaputta V. Measuring Employee Readiness To Change : a Case Study
3 561 of an Organization in Myanmar. *Panyapiwat J.* 2018;10(3):110–24.
- 4
5 562 23. White Ribbon Alliance. Respectful Maternity Care: The Universal Rights of
6 563 Childbearing Women [Internet]. The White Ribbon Alliance for Safe Motherhood.
7 564 2011 [cited 2021 Feb 1]. Available from:
8 565 [https://www.who.int/woman_child_accountability/ierg/reports/2012_01S_Respectful_](https://www.who.int/woman_child_accountability/ierg/reports/2012_01S_Respectful_Maternity_Care_Charter_The_Universal_Rights_of_Childbearing_Women.pdf)
9 566 [Maternity_Care_Charter_The_Universal_Rights_of_Childbearing_Women.pdf](https://www.who.int/woman_child_accountability/ierg/reports/2012_01S_Respectful_Maternity_Care_Charter_The_Universal_Rights_of_Childbearing_Women.pdf)
- 10
11 567 24. Mselle LT, Kohi TW, Dol J. Humanizing birth in Tanzania: A qualitative study on the
12 568 (mis) treatment of women during childbirth from the perspective of mothers and
13 569 fathers. *BMC Pregnancy Childbirth.* 2019;19(1):1–11.
- 14
15 570 25. Balde MD, Nasiri K, Mehrtash H, Soumah AM, Bohren MA, Diallo BA, et al. Labour
16 571 companionship and women’s experiences of mistreatment during childbirth: Results
17 572 from a multi-country community-based survey. *BMJ Glob Heal.* 2020;5(e003564):1–
18 573 10.
- 19
20 574 26. Afulani P, Kusi C, Kirumbi L, Walker D. Companionship during facility-based
21 575 childbirth: results from a mixed-methods study with recently delivered women and
22 576 providers in Kenya. *BMC Pregnancy Childbirth* 2018 181 [Internet]. 2018 May 10
23 577 [cited 2021 Oct 10];18(1):1–28. Available from:
24 578 [https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-018-1806-](https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-018-1806-1)
25 579 [1](https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-018-1806-1)
- 26
27 580 27. Lawrence A, Lewis L, Hofmeyr GJ, Dowswell T, Styles C. Maternal positions and
28 581 mobility during first stage labour. *Cochrane Database Syst Rev.* 2013;(8).
- 29
30 582 28. Lugina H, Mlay R, Smith H. Mobility and maternal position during childbirth in
31 583 Tanzania: an exploratory study at four government hospitals. *BMC Pregnancy*
32 584 *Childbirth* 2004 41 [Internet]. 2004 Feb 19 [cited 2021 Oct 10];4(1):1–10. Available
33 585 from: [https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-](https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-4-3)
34 586 [4-3](https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-4-3)
- 35
36 587 29. World Health Organization. Standards for improving quality of maternal and newborn
37 588 care in health facilities [Internet]. Geneva,, Switzerland: WHO Press; 2016 [cited 2018
38 589 Oct 16]. 84 p. Available from:
39 590 [https://www.who.int/maternal_child_adolescent/documents/improving-maternal-](https://www.who.int/maternal_child_adolescent/documents/improving-maternal-newborn-care-quality/en/)
40 591 [newborn-care-quality/en/](https://www.who.int/maternal_child_adolescent/documents/improving-maternal-newborn-care-quality/en/)
- 41
42 592 30. WHO | Why having a companion during labour and childbirth may be better for you.
43 593 WHO [Internet]. 2019 [cited 2021 Oct 10]; Available from:
44 594 <http://www.who.int/reproductivehealth/companion-during-labour-childbirth/en/>
- 45
46 595 31. Mirzaee Rabor F, Taghipour A, Najmabadi KM, Fattahi Masoum SH, Pour MF.
47 596 Respect to women’s autonomy in childbirth: A qualitative study. *Iran Red Crescent*
48 597 *Med J.* 2017;19(12).
- 49
50 598 32. Afulani PA, Afulani PA, Buback L, Kelly AM, Kirumbi L, Cohen CR, et al. Providers’
51 599 perceptions of communication and women’s autonomy during childbirth: A mixed
52 600 methods study in Kenya. *Reprod Health.* 2020 Jun 3;17(1).
- 53
54 601 33. Edwards N. Maternity care providers’ perceptions of women’s autonomy and the law.
55 602 *AIMS J.* 2015;27(1):22.
- 56
57 603 34. Miltenburg AS, Lambermon F, Hamelink C, Meguid T. Maternity care and Human

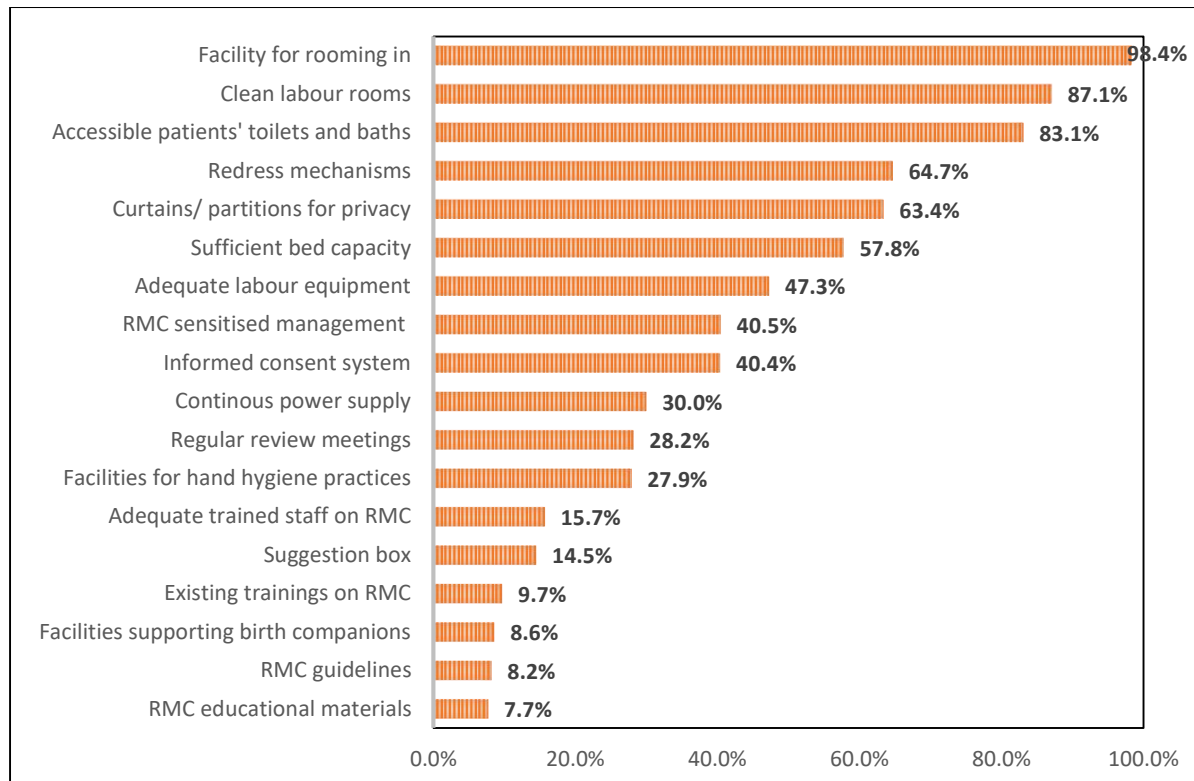
- 1
2 604 Rights: what do women think? *BMC Int Health Hum Rights* [Internet]. 2016 [cited
3 605 2018 Jun 16];16(17):1–10. Available from: [http://dx.doi.org/10.1186/s12914-016-](http://dx.doi.org/10.1186/s12914-016-0091-1)
4 606 0091-1
5
- 6 607 35. Geerligs L, Shepherd HL, Butow P, Shaw J, Masya L, Cuddy J, et al. What factors
7 608 influence organisational readiness for change? Implementation of the Australian
8 609 clinical pathway for the screening, assessment and management of anxiety and
9 610 depression in adult cancer patients (ADAPT CP). *Support Care Cancer*.
10 611 2021;29(6):3235–44.
12
- 12 612 36. Beasley L, Grace S, Horstmanshof L. Assessing individual readiness for change in
13 613 healthcare: a review of measurement scales. *J Health Organ Manag* [Internet]. 2021 Jan
14 614 1 [cited 2021 Mar 10];35(8):1062–79. Available from: [https://doi.org/10.1108/JHOM-](https://doi.org/10.1108/JHOM-10-2020-0414)
15 615 10-2020-0414
17
- 18 616 37. Trisnawati A, Damayanti N, Novita RD. How Change Valence Impacts Readiness to
19 617 Change In Teaching Hospital. *Eur J Mol Clin Med*. 2020;07(05):310–6.
20
- 21 618 38. AbuTahoun TNB, Khan N. The Management Role in Promoting Individual Readiness
22 619 for Change. *Int Conf Manag Inf Syst* [Internet]. 2019 [cited 2021 Jul 28];29:217–22.
23 620 Available from:
24 621 [https://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=141539752&site=e](https://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=141539752&site=ehost-live)
25 622 [host-live](https://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=141539752&site=ehost-live)
26
- 27 623 39. Asefa A, McPake B, Langer A, Bohren MA, Morgan A. Imagining maternity care as a
28 624 complex adaptive system: understanding health system constraints to the promotion of
29 625 respectful maternity care. *Sex Reprod Heal Matters* [Internet]. 2020 [cited 2021 Oct
30 626 11];28(1):456–74. Available from: <https://doi.org/10.1080/26410397.2020.1854153>
32
- 32 627 40. Edwards N, Barker PM. The importance of context in implementation research. *J*
33 628 *Acquir Immune Defic Syndr*. 2014;67:S157–62.
35
- 35 629 41. Horner R, Blitz C, Ross SW. The Importance Of Contextual Fit When Implementing
36 630 Evidence-Based Interventions [Internet]. *ASPE Issue Brief*. 2014 [cited 2021 Nov 27].
37 631 Available from: [http://aspe.hhs.gov/hsp/14/IWW/ib_](http://aspe.hhs.gov/hsp/14/IWW/ib_Contextual.pdf)
38 632 [Contextual.pdf](http://aspe.hhs.gov/hsp/14/IWW/ib_Contextual.pdf)
39
- 39 632 42. Kok BC De, Uny I, Imamura M, Bell J, Geddes J, Phoya A. From Global Rights to
40 633 Local Relationships : Exploring Disconnects in Respectful Maternity Care in Malawi.
41 634 *Qual Health Res*. 2020;20(3):341–335.
43
- 43 635 43. Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The
44 636 Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)
45 637 statement: Guidelines for reporting observational studies. *PLoS Med*.
46 638 2007;4(10):1623–7.
48
- 49 639



Forms of mistreatment noted by providers in their health facilities (n=212)



Provider's perceived rights women should always have during childbirth (n=212)



Additional file 1

What is Respectful Maternity Care?

Respectful Maternity Care (RMC) is a human rights approach to childbirth care practice. It is a new strategy for caring for women in labour which we are yet to commence implementing in this health facility. We are interested in knowing how health facilities offering childbirth services, their managers and individual workers are **READY** to integrate respectful maternity care into their routine childbirth services.

What is Respectful Maternity care?

Simply, it means the following

1. The preferences of the client must be respected, and she must be involved in the decision making regarding her health.
2. She must be allowed a companion during birth as recommended by the WHO
3. She must be free to move about during labour if she so wishes even in the second stage before the urge to deliver and not restricted to one position.
4. If classified as a low risk pregnant woman, she should be allowed oral fluids or food while in labour as evidence has shown no negative outcomes following this.
5. Her privacy must be ensured by providing one private cubicle or space per woman in labour and information about her should not be shared openly.
6. If she prefers to deliver her child squatting, the health care provider must be willing to support her in the decision.
7. Equitable services must be delivered to her regardless of her personal characteristics.
8. When she calls for help during labour, she must not be denied nor neglected.
9. If she is unable to pay her bills, a consensus must be reached with her on how to pay rather than detaining her illegally for the inability to pay.
10. Overall, she must receive the utmost respectful and dignified care, that she deserves as her fundamental human rights.

Additional file 2: Breakdown of tools in the health provider survey instrument

	Name of Tool and Sections	Source	Items	Response type	Alpha coeff.
1	*Organisational Readiness for Implementing change (ORIC)	Shea et al ¹	12	Likert scale 1-5	0.949
2	*Individual readiness for change	Vakola et al ²	6	Likert scale 1-7	0.733
3	Socio-demographic characteristics	Adapted from the literature	15		
4	Perception on women's rights during childbirth	Childbirth Connection ³	13	Likert scale 1-5	0.575
5	Provider awareness of mistreatment in their own facility	Maternal & Child Health program ⁴	12	Likert scale 1-5	0.638
6	Change valence	Shea et al ¹	6	Likert scale 1-5	0.902
7	Informational assessments	Phillip ⁵	8	Likert scale 1-5	0.648
8	Perception on RMC resource availability	WHO Recommendation for labour ⁶	18	Likert scale 1-5	0.669
10	Core self-evaluation tool	Judge et al ⁷	12	Likert scale 1-5	0.598
11	Employee job satisfaction tool	Management Sciences for Health ⁸	10	Likert scale 1-5	0.603
	Total		112		

*Outcome variables; WHO: World Health Organisation

References

1. Shea CM, Jacobs SR, Esserman DA, Bruce K, Weiner BJ. Organizational readiness for implementing change : a psychometric assessment of a new measure. *Implement Sci.* 2014;9(7):1–15.
2. Vakola M. What's in there for me? Individual readiness to change and the perceived impact of organizational change. *Leadersh Organ Dev J.* 2014;35(3):195–209.
3. Childbirth Connection. The Rights of Childbearing Women: Fundamental Problems with Maternity Care in the United States [Internet]. ChildBirth Connection. 2006 [cited 2019 Jan 12]. p. 1–4. Available from: www.childbirthconnection.org/rights
4. Maternal and Child Health Integrated Program. Respectful Maternity Care Program Review Instrument [Internet]. United States of America: K4Health; 2010 [cited 2018 May 24]. Available from: [https://www.k4health.org/sites/default/files/RMC Program Review Instrument_0.pdf](https://www.k4health.org/sites/default/files/RMC%20Program%20Review%20Instrument_0.pdf)
5. Phillips JE. Effects of Change Valence and Informational Assessments on Organizational Readiness for Change T [Internet]. Walden University, Cape Town; 2017 [cited 2018 Sep 27]. Available from: <https://scholarworks.waldenu.edu/dissertations/4016/>
6. World Health Organization. WHO recommendations: Intrapartum care for a positive childbirth experience [Internet]. Geneva, Switzerland; 2018 [cited 2018 Aug 8]. 1–200 p. Available from: <https://www.who.int/reproductivehealth/publications/intrapartum-care-guidelines/en/>
7. Judge TA, Erez A, Bono J., Thoresen CJ. The Core Self-Evaluation Scale (CSES): Development of a Measure. *Pers Psychol.* 2003;56:303–31.
8. O'Neil M, Reimann S. Health Systems in Action: An eHandbook for Leaders and Managers. In: *Managing Human Resources* [Internet]. 2014th ed. Medford, MA, United States of America: Management Sciences for Health; 2010 [cited 2019 Jan 14]. Available from: <http://www.msh.org/resources/health-systems-in-action-an-e-handbook-for-leaders-and->

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

managers

For peer review only

Additional file 2

1. Principal Component Analysis Results for the scale assessing Health Provider's perception of women's rights during childbirth.

Test	Measure	Statistics
Kaiser-Meyer-Olkin (KMO)	Sampling adequacy	^a 0.620
Bartlett's	Sphericity	$\chi^2 = 229.126$ df = 78 p < 0.001*

Total Variance explained

Component	Eigenvalues	% of variance	Cumulative %
1	2.326	17.89	17.89
2	1.448	11.14	29.04

* Statistically significant ^a Sample is adequate (No of observations -203)

6 Principal component eigenvectors for 4 of 13 components

Variable	Comp1	Comp2	Comp3	Comp4	Comp5
right_Know~r	0.3444	-0.0563	0.0809	0.4687	0.1214
right_priv~y	0.2609	-0.5047	0.0694	0.1062	0.1655
right_info~n	0.1528	-0.1522	0.1208	0.0868	0.6739
right_refu~t	0.1797	0.3353	-0.2941	0.3634	0.0657
right_rese~t	0.2260	0.4095	-0.3549	0.1507	0.2613
right_acce~s	0.2397	-0.2237	-0.3648	-0.3109	0.1185
right_cult~e	0.3100	-0.3255	0.0846	0.2425	-0.4273
right_nola~r	0.0559	0.2120	0.7022	-0.0018	0.2357
right_comp~p	0.3543	0.0971	0.3081	-0.0594	-0.2283
right_mobi~r	0.3228	-0.0195	-0.0627	-0.3274	0.1690
right_noba~n	0.1915	0.4536	0.1623	-0.2516	-0.0634
right_pain~f	0.4288	0.1441	-0.0478	0.0854	-0.3068
right_birt~n	0.3157	-0.0396	-0.0281	-0.5196	0.0064

9 Correlation matrix showing the total, mean scores and pca predicted scores (final rights) for health provider's perception and frequency of women's rights during childbirth.

	Total scores _perceived women's rights	Mean scores _perceived women's rights	No of items agreed to _perceived women's rights	Pca scores _perceived women's rights
Total scores _	1.000			
Mean scores	1.000	1.000		
No of items agreed	0.9157	0.9157	1.000	
Pca scores	0.9919	0.9919	0.9073	1.000

2. **Principal Component Analysis Results for the scale assessing Health Provider's awareness of the frequency of mistreatment of women during childbirth at their own health facilities**

Test	Measure	Statistics
Kaiser-Meyer-Olkin (KMO)	Sampling adequacy	^a 0.720
Bartlett's	Sphericity	$\chi^2 = 357.784$ df = 66 p < 0.001*

Total Variance explained

Component	Eigenvalues	% of variance	Cumulative %
1	2.783	23.19	23.19
2	1.440	12.00	35.19

* Statistically significant ^a Sample is adequate (No of observations -211)

Principal component eigenvectors for 4 of 12 components

Variable	Comp1	Comp2	Comp3	Comp4
physical_abuse	0.1505	-0.1880	0.5230	0.3352
verbal_abuse	0.3260	-0.3530	0.3263	0.1119
lack_of_information	0.4237	-0.0759	-0.2696	0.2439
no_informed_consent	0.2234	0.1038	-0.4436	0.4205
lack_of_privacy	0.3758	0.2156	0.0596	-0.2068
lack_confidentiality	0.4621	0.0288	-0.1338	-0.1383
discrimination	0.4057	-0.1312	-0.1291	-0.0910
no_birth_control	0.1262	0.3171	0.2598	0.2618
no_movement_restrictions	0.0401	0.4763	0.3472	-0.1348
no_choice_of_provider	0.1061	0.5535	0.1156	0.3253
separation_of_mother_and_baby	0.1021	-0.3402	0.3182	0.0749
abandonment	0.2883	0.0975	0.0988	-0.6087

Correlation matrix showing the total scores, mean scores and pca predicted scores (final mistreatment) for health provider's awareness of the frequency of women's mistreatment during childbirth at their facilities

	Total scores _perceived women's rights	Mean scores _perceived women's rights	No of items agreed to _perceived women's rights	Pca scores _perceived women's rights
Total scores _	1.000			
Mean scores	1.000	1.000		
No of items agreed	-0.7437	-0.7437	1.000	
Pca scores	0.8658	0.8658	-0.4638	1.000

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

3. Principal component analysis results for the scale assessing health provider's perception of resource availability for the implementation of RMC as recommended by the World Health Organisation

Test	Measure	Statistics	
Kaiser-Meyer-Olkin (KMO)	Sampling adequacy	^a 0.640	
Bartlett's	Sphericity	$\chi^2 = 557.535$	
		df = 153	
		p < 0.001*	
Total Variance explained			
Component	Eigenvalues	% of variance	Cumulative %
1	2.968	16.49	16.49
2	2.242	12.46	28.95

* Statistically significant ^aSample is adequate (No of observations -173)

27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Principal component eigenvectors for 6 of 18 components

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
adequate_s~f	0.1937	-0.3240	0.2060	-0.0295	0.1330	-0.1381
mgt_sensit~d	0.1834	0.1923	-0.4623	-0.0580	0.1970	-0.0811
regular_rm~g	0.3397	-0.0619	-0.3633	-0.2583	-0.1123	-0.0819
written_gu~s	0.3728	-0.0247	0.0683	-0.3796	-0.1623	0.0967
informed_c~t	0.0625	0.5407	0.1832	-0.1032	0.0221	0.0626
rnc_educat~s	0.2679	0.0166	0.3492	-0.3203	-0.1146	0.1170
rooming_in	-0.0196	0.2111	-0.0005	0.0803	-0.0010	0.6030
clean_priv~e	0.2048	0.2019	-0.1084	0.3604	-0.2740	0.0965
clean_bath~s	0.2307	0.1783	0.0003	0.3818	-0.3967	0.0724
safe_water~e	0.0780	0.1868	0.1777	0.2380	0.0806	-0.6417
curtains_a~s	0.3270	0.1311	0.1233	0.1952	-0.1454	-0.2312
adequate_b~s	0.2094	-0.1672	0.2842	0.2932	0.4128	0.1370
space_woma~s	0.1107	-0.3020	0.3363	-0.0534	-0.3750	-0.0117
adequate_l~t	0.1908	-0.3234	-0.0153	0.3417	0.2592	0.2372
power_supp~r	0.3325	-0.0968	-0.0659	0.0334	-0.0543	0.1038
rnc_practi~w	0.2486	-0.2531	-0.4220	0.0271	0.0132	-0.0762
suggestion~x	0.2576	0.2220	0.1264	-0.2739	0.4053	-0.0240
redress_co~e	0.2430	0.2129	0.0257	0.1119	0.2920	0.0707

31
32
33
34
35
36

Correlation matrix showing the total scores, mean scores and principal component analysis predicted scores (final res) predicted scores for health provider's perception on the availability of resources needed to implement respectful maternity care as recommended by the World Health Organisation

	Total scores _resource availability	Mean scores _ resource availability	No of items agreed to_ _resource availability	Pca scores _ resource availability
Total scores _	1.000			
Mean scores	1.000	1.000		
No of items agreed	0.9206	0.9206	1.000	
Pca scores	0.9576	0.9576	0.8657	1.000

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies***Title: Organisational and individual readiness for change to respectful maternity care practice and associated factors in Ibadan, Nigeria: a cross-sectional study**

	Item No	Recommendation		Page
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	<input checked="" type="checkbox"/>	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	<input checked="" type="checkbox"/>	2
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	<input checked="" type="checkbox"/>	4
Objectives	3	State specific objectives, including any pre-specified hypotheses	<input checked="" type="checkbox"/>	5
Methods				
Study design	4	Present key elements of study design early in the paper	<input checked="" type="checkbox"/>	5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	<input checked="" type="checkbox"/>	5
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	<input checked="" type="checkbox"/>	5-6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	<input checked="" type="checkbox"/>	6-7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	<input checked="" type="checkbox"/>	<i>Additional file 2</i>
Bias	9	Describe any efforts to address potential sources of bias (Adjusted for clustering effect)	<input checked="" type="checkbox"/>	7
Study size	10	Explain how the study size was arrived at	<input checked="" type="checkbox"/>	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	<input checked="" type="checkbox"/>	7-8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	<input checked="" type="checkbox"/>	8
		(b) Describe any methods used to examine subgroups and interactions	<input checked="" type="checkbox"/>	8
		(c) Explain how missing data were addressed	<input type="checkbox"/> No missing data	
		(d) If applicable, describe analytical methods taking account of sampling strategy	<input checked="" type="checkbox"/>	7
	(e) Describe any sensitivity analyses	<input type="checkbox"/> Not applicable		
Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	<input checked="" type="checkbox"/>	8-9

		(b) Give reasons for non-participation at each stage	<input type="checkbox"/> Not applicable	
		(c) Consider use of a flow diagram	<input type="checkbox"/> Not applicable	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	<input checked="" type="checkbox"/>	8-9
		(b) Indicate number of participants with missing data for each variable of interest	<input type="checkbox"/> Not applicable	
Outcome data	15*	Report numbers of outcome events or summary measures	<input checked="" type="checkbox"/>	10
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	<input checked="" type="checkbox"/>	11
		(b) Report category boundaries when continuous variables were categorized	<input checked="" type="checkbox"/>	9 & 11
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		Not applicable
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	<input type="checkbox"/> Not applicable	
Discussion				
Key results	18	Summarise key results with reference to study objectives	<input checked="" type="checkbox"/>	16
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	<input checked="" type="checkbox"/>	16-17
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	<input checked="" type="checkbox"/>	17-21
Generalisability	21	Discuss the generalisability (external validity) of the study results	<input checked="" type="checkbox"/>	17
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	<input checked="" type="checkbox"/>	22

*Give information separately for exposed and unexposed groups.

BMJ Open

Organisational and individual readiness for change to respectful maternity care practice and associated factors in Ibadan, Nigeria: a cross-sectional survey

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2022-065517.R1
Article Type:	Original research
Date Submitted by the Author:	16-Sep-2022
Complete List of Authors:	Esan, Oluwaseun; Obafemi Awolowo University College of Health Sciences, Department of Community Health, Faculty of Clinical Sciences; University of the Witwatersrand Faculty of Health Sciences, Centre for Health Policy, School of Public Health Maswime, Salome; University of Cape Town Faculty of Health Sciences, Global Surgery Division, Department of Surgery Blaauw, Duane; University of the Witwatersrand Faculty of Health Sciences, Centre for Health Policy, School of Public Health
Primary Subject Heading:	Public health
Secondary Subject Heading:	Health services research, Reproductive medicine
Keywords:	Change management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PUBLIC HEALTH, REPRODUCTIVE MEDICINE, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Organisation of health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

SCHOLARONE™
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

1
2
3 **1 Organisational and individual readiness for change to respectful maternity care practice**
4 **and associated factors in Ibadan, Nigeria: a cross-sectional survey**
5
6
7
8
9

4 **1. Dr Oluwaseun Taiwo Esan**

5 Department of Community Health, Faculty of Health Sciences,

6 Obafemi Awolowo University/ Teaching Hospitals Complex, Ile-Ife, Osun State, Nigeria.

7 & Centre for Health Policy, School of Public Health, University of the Witwatersrand,
8 Johannesburg, South Africa

9 Email: o.esan@oauife.edu.ng

10 ORCID: 0000-0002-2908-6034

11 **2. Professor Salome Maswime**

12 Global Surgery Division, Department of Surgery, Faculty of Health Sciences,

13 University of Cape Town, Cape Town. South Africa

14 ORCID: 0000-0003-4013-5164

15 E-mail: salome.maswime@uct.ac.za

16 **3. Dr Duane Blaauw**

17 Centre for Health Policy, School of Public Health,

18 Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa.

19 ORCID: 0000-0002-0605-7134

20 E-mail: duane.blaauw@wits.ac.za

21
22 **Correspondence to:**

23 Dr Oluwaseun Taiwo Esan

24 o.esan@oauife.edu.ng

25
26 Word count: 4,577

27 **Abstract**

28 **Objectives:** This study assessed health providers' organisational and individual readiness for
29 change to respectful maternity care (RMC) practice and their associated factors in Ibadan
30 Metropolis, Nigeria.

31 **Design:** A cross-sectional survey using standardised structured instruments adapted from the
32 literature.

33 **Setting:** Nine public health facilities in Ibadan Metropolis, Nigeria, December 1, 2019, to May
34 31, 2020.

35 **Participants:** 212 health providers selected via a two-stage cluster sampling.

36 **Outcomes:** Organisational readiness for change to RMC (ORC_{RMC}) and individual readiness
37 for change to RMC (IRC_{RMC}) scales had a maximum score of 5. Multiple linear regression was
38 used to identify factors influencing IRC_{RMC} and ORC_{RMC} . We evaluated previously identified
39 predictors of readiness for change (change valence, informational assessments on resource
40 adequacy, core self-evaluation and job satisfaction) and proposed others (workplace
41 characteristics, awareness of mistreatment during childbirth, perceptions of women's rights and
42 resource availability to implement RMC). Data were adjusted for clustering and analysed using
43 Stata 15.

44 **Results:** The providers' mean age was 44.0 ± 9.9 with 15.4 ± 9.9 years of work experience. They
45 scored high on awareness of women's mistreatment (3.9 ± 0.5) and women's perceived rights
46 during childbirth (3.9 ± 0.5). They had high ORC_{RMC} (4.1 ± 0.9) and IRC_{RMC} (4.2 ± 0.6), both
47 weakly but positively correlated ($\rho = 0.407$, 95% CI: 0.288-0.514, $p < 0.001$). Providers also
48 had high change valence (4.5 ± 0.8) but lower perceptions of resource availability (2.7 ± 0.7) and
49 adequacy for implementation (3.3 ± 0.7). Higher provider change valence and informational
50 assessments were associated with significantly increased IRC_{RMC} (β 0.40 [95% CI: 0.11-0.70,

1
2 51 p=0.015] and β 0.07 [95% CI: 0.01-0.13, p=0.032], respectively), and also with significantly
3
4 52 increased ORC_{RMC} (β 0.47 [95% CI: 0.21-0.74, p=0.004] and β 0.43 [95% CI: 0.22-0.63,
5
6 53 p=0.002], respectively). Longer years of work experience (β 0.08, 95% CI:0.01-0.2, p=0.024),
7
8 54 providers' monthly income (β 0.08, 95% CI:0.02-0.15, p=0.021) and the health facility of
9
10 55 practice were associated with significantly increased ORC_{RMC}.

11
12
13
14 56 **Conclusion:** The health providers studied valued a change to RMC and believed that both they
15
16 57 and their facilities were ready for the change to RMC practice.
17
18
19

20 58
21
22
23 59 **Keywords:** Organisational readiness, individual readiness, readiness for implementing change,
24
25 60 respectful maternity care, pre-implementation research, change commitment and efficacy
26
27
28
29

30 31 62 **Strengths and limitations of this study**

- 32
33
34
35 63 • The study was conducted in the pre-implementation phase before the integration of
36
37 64 respectful maternity care practice into routine childbirth care in the study location.
38
39
40 65 • Organisational and individual readiness for change theories were tested quantitatively
41
42 66 using very brief standardised assessment scales (12-item and 6-item) among health
43
44 67 providers, with zero non-response rate recorded.
45
46
47 68 • All categories of maternal health care providers were interviewed, which may facilitate
48
49 69 stakeholder engagement during the implementation process.
50
51 70 • The study was limited in its geographical scope as it was conducted in Ibadan
52
53 71 Metropolis, one metropolitan area in a South-Western Nigerian state.
54
55
56
57
58
59
60

- 1
2 72 • The study was further limited in its scope as tertiary health facilities were not studied
3
4 73 because there was only one tertiary health facility serving the populations in the study
5
6 74 location.
7
8
9

10 75 **Introduction**

11 76 The utilisation of maternal care services, especially during childbirth, is low in Nigeria. The
12
13 77 proportion of women whose delivery utilised a skilled birth attendant in 2018 was 43.3%.¹ One
14
15 78 of the reasons explaining this is women's mistreatment during birth.^{2,3} Negative health worker
16
17 79 attitudes have been expressed as mistreatment, particularly during childbirth, and this has been
18
19 80 reported frequently, both globally and in Nigeria specifically. Ogunlaja *et al*⁴ found a 93.2%
20
21 81 reported prevalence of mistreatment in previous deliveries among 438 antenatal clients in
22
23 82 Ogbomoso, Oyo state. The Nigerian prevalence of women's mistreatment during childbirth was
24
25 83 reported as ranging from 11% to 71% according to a systematic review of 14 studies between
26
27 84 2004 and 2015.⁵ Respectful maternity care practices have been prioritised as a means to
28
29 85 improve patient-provider interactions and the quality of maternal care experienced.
30
31
32
33
34

35 86 Respectful maternity care has been defined as "*care organised for and provided to all women*
36
37 87 *in a manner that maintains their dignity, privacy and confidentiality, ensures freedom from*
38
39 88 *harm and mistreatment, and enables informed choice and continuous support during*
40
41 89 *childbirth*" (page 3).⁶ It is a human rights approach to maternity care⁷ and is recommended as
42
43 90 the standard for all women.⁸ Several RMC-promoting interventions have been implemented
44
45 91 and have shown promising results.⁹ For these results to be enduring and sustainable, the health
46
47 92 providers will need to embrace and support the interventions. This can be achieved if they are
48
49 93 ready for the change to an RMC practice.
50
51
52
53

54 94 Readiness for change measures the extent to which people or organisations are inclined to adopt
55
56 95 a change that alters the "status quo".¹⁰ It addresses the psychological and behavioural forms of
57
58 96 readiness for change, that is the state of being willing and able to change.^{11,12} Some authors also
59
60

1
2 97 describe it as having a structural component that addresses the presence or absence of financial,
3
4 98 material, and human resources needed for a change, such as to RMC practice.¹² Readiness for
5
6 99 change is a multilevel construct measured at individual and organisational levels.
7
8
9 100 Organisational readiness for change is a multifaceted concept that consists of employees'
10
11 101 change commitment (collective resolve) and change efficacy (perceived shared ability) to
12
13 102 implement the change.¹¹ Individual readiness for change is an employee's confidence to
14
15 103 manage the change or willingness to accept new roles and adopt new practices.¹³ Readiness for
16
17 104 change is different from preparedness as the latter addresses the set activities to implement the
18
19 105 change¹⁴ while readiness measures being both prepared and motivated to implement the change.
20
21
22
23 106 Readiness for change is a key determinant of implementation success.^{15,16} The readiness for
24
25 107 change theories have been applied in both health and non-health organisations, however, there
26
27 108 are no previous studies on their application to RMC-promoting interventions. Readiness for
28
29 109 change to RMC among community, facility and policy stakeholders was mentioned as being
30
31 110 responsible for the positive results of an RMC project in Kenya.¹⁷ However, readiness for
32
33 111 change was not measured directly in that study.¹⁷ Many RMC-promoting interventions have
34
35 112 been conducted without prior assessment of the individual employee or organisational readiness
36
37 113 for change.^{18,19} If readiness is assessed and found wanting, efforts can be directed at improving
38
39 114 it. If otherwise, this suggests the providers' willingness to accept the change irrespective of the
40
41
42 115 work task demands brought by it.
43
44
45

46
47 116 The proposed theory of change for this study is that a high organisational and individual
48
49 117 readiness for change would lead to the adoption and institutionalisation of RMC practice which
50
51 118 should result in long-term outcomes such as increased health facility delivery. Adoption is the
52
53 119 temporary altering of attitudes and behaviours to meet the change expectations.
54
55 120 Institutionalisation occurs when the change becomes part of the organisational processes.¹⁰ This
56
57 121 is assuming all limiting barriers and contextual factors have been identified and addressed. The
58
59
60

1
2 122 barriers and contextual factors have been explored but the data are yet to be published. This
3
4 123 study assessed health providers' organisational and individual readiness for change to RMC
5
6 124 practice and their associated factors in Ibadan Metropolis, Nigeria.
7
8
9

10 125 **Methods**

11 126 **Design, setting, and participants**

12
13
14 127 This was a cross-sectional survey conducted from December 1, 2019, to May 31, 2020, in
15
16 128 Ibadan Metropolis, Oyo state, Nigeria. Ibadan (the third largest city in Nigeria and the seventh
17
18 129 in Africa) was selected, being a more cosmopolitan city. This study was conducted among
19
20 130 public health care providers from the five Local Government Areas (LGA) in Ibadan
21
22 131 Metropolis. There were 6 public secondary and 26 functional public primary health facilities in
23
24 132 the five LGAs with a minimum of 12 deliveries per year at the time of conducting the study.
25
26 133 Maternity care services, including delivery services, are offered in all facilities, with more
27
28 134 specialised care at secondary health facilities. Doctors and nurses attend deliveries at both
29
30 135 primary and secondary health facilities, while Community Health Officers (CHOs),
31
32 136 Community Health Extension Workers (CHEWs) and Health Auxiliaries (HA) only attend
33
34 137 deliveries at primary health facilities in the study state.
35
36
37
38
39

40 138 A two-stage cluster sampling technique was used to select the health facilities and providers in
41
42 139 the study LGAs. One primary and one secondary health facility were selected in each LGA
43
44 140 using simple random sampling, except in one LGA without a secondary health facility. This
45
46 141 gave a total of nine health facilities studied (5 primary and 4 secondary health facilities). There
47
48 142 were a total of 244 health providers (as the study population or sampling frame) who could
49
50 143 attend deliveries in the study facilities (176 in the 4 secondary facilities and 68 in the 5 primary
51
52 144 facilities).
53
54

55
56
57 145 A sample size of 210 health providers was calculated using the one-sample mean test²⁰ in Stata.
58
59 146 This represented 86% of the study population. The parameters used were a change commitment
60

1
2 147 mean of 3.64 ± 0.61 standard deviation (SD), based on a similar study in Switzerland, as a proxy
3
4 148 for organisational readiness.²¹ The required precision was $\pm 5\%$ about the reference mean, with
5
6 149 90% power, and a design effect of 2²² for the cluster sampling. The number of health providers
7
8 150 interviewed at each facility was allocated proportionately to the generated total number of
9
10 151 health providers per professional type at each health facility within the LGAs.

11
12
13
14 152 All the available and consenting health providers at each health facility were interviewed until
15
16 153 the required numbers of each professional type for each facility were reached. As the health
17
18 154 workers work in shifts (and thus may not have been working at the time of initial approach), if
19
20 155 the number to be interviewed was yet to be reached after interviewing all the available and
21
22 156 consenting health workers on the morning and afternoon shifts, the data collectors repeatedly
23
24 157 visited the facilities to recruit workers on shifts on later dates. We did not document the number
25
26 158 that did not consent, but the majority of those who were approached consented and were
27
28 159 interviewed.

29
30
31
32
33 160 Ethical approvals were obtained from the Human Research Ethics Committees of the University
34
35 161 of the Witwatersrand, Johannesburg (clearance Number M190658), and the Oyo State Ministry
36
37 162 of Health (Ref. Number AD/13/479/1386).

38 39 40 41 163 **Data collection**

42
43
44 164 Data collection was done using a 112-item tool with 9 sections developed in REDCap and
45
46 165 conducted within the health facility premises.²³ Two trained research assistants administered
47
48 166 the questionnaire. The tools were pre-tested among 12 health providers from one public
49
50 167 secondary health facility in Ibadan North-West LGA and one public primary health facility in
51
52 168 Ibadan North LGA, after a two-day training. Findings from the pre-test were used to improve
53
54 169 the data collection instruments. The first part of the instrument assessed health providers'
55
56 170 perceptions of women's rights during childbirth, their awareness of women's mistreatment
57
58
59
60

1
2 171 during childbirth in their health facilities, and their awareness of the RMC concept. A one-page
3
4 172 brief on 'RMC during childbirth' was read to each respondent (see Additional file 1). The
5
6 173 subsequent sections of the questionnaire evaluated providers' perceptions of individual and
7
8 174 organisational readiness for change to RMC practice during childbirth, and possible associated
9
10 175 factors, using standardised tools. (See Additional file 2 for the survey instrument)
11
12
13

14 176 The respondents' perceived organisational readiness and individual readiness for change to
15
16 177 RMC practice were the outcome variables. Organisational readiness for change to RMC
17
18 178 (ORC_{RMC}) was assessed using a standardised 12-item Organisational Readiness for
19
20 179 Implementing Change (ORIC) tool²⁴ with 5 items measuring their change commitment and 7-
21
22 180 items assessing their change efficacy, both on a 5-point Likert agreement scale.²⁴ The questions
23
24 181 assessing organisational readiness were framed as, "*The health workers in this health facility*
25
26 182 *are...*" Organisational readiness was determined as the mean score of the 12 items on the scale
27
28 183 with a maximum score of 5. Individual readiness for change to RMC (IRC_{RMC}) was measured
29
30 184 using a 6-item tool on a 5-point Likert agreement scale by Vakola et al.¹³ Questions were framed
31
32 185 as "*I am willing to...*". IRC_{RMC} was determined as the mean score of the 6-item scale, also with
33
34 186 a maximum score of 5. When reported as percentages, the mean scores were standardised and
35
36 187 converted to it using the formula $(\text{Mean}-1)/4*100$.
37
38
39
40
41
42

43 188 For the predictors, we included factors well described in the implementation science literature
44
45 189 and used standardised tools. The previously defined predictors of ORC_{RMC} by Weiner¹¹ include
46
47 190 employee change valence (how much they value the change) and informational assessments
48
49 191 (perceived adequacy of the resources available to implement the change). Previously defined
50
51 192 predictors of IRC_{RMC} by Vakola et al¹³ include employee job satisfaction and core self-
52
53 193 evaluation (which assesses their self-esteem, locus of control, emotional stability and
54
55 194 generalised self-efficacy).²⁵ We evaluated all of these predictors on both IRC_{RMC} and ORC_{RMC}.
56
57
58
59
60

1
2 195 In addition, we also proposed that individual provider characteristics such as being younger,
3
4 196 having more years of experience, and having higher monthly income could positively influence
5
6 197 IRC_{RMC} and ORC_{RMC}. We suggested that health providers' perceptions about women's rights
7
8 198 during childbirth, their perceived availability and adequacy of resources for RMC
9
10 199 implementation and differences in their workplace contexts might influence both IRC_{RMC} and
11
12 200 ORC_{RMC}. Additional file 3 summarises the study's analytical framework and Additional file 4
13
14 201 gives the list of standardised tools used to assess the analytical constructs, together with their
15
16 202 reliability statistics in our study. The highest Cronbach's alpha was 0.949 for the organisational
17
18 203 readiness for change tool, while the lowest was 0.575 for the tool assessing providers'
19
20 204 perception of women's rights.

25 205 **Data analysis**

26
27
28
29 206 Data collected were uploaded to the University of the Witwatersrand data management system
30
31 207 via REDCap. Only the first author had access to download and save on a passworded computer,
32
33 208 then shared with the co-authors. The dataset has been shared with the Figshare repository.²⁶

34
35
36
37 209 Data analysis was done using the Stata version 15 software. We adjusted for weighting and
38
39 210 facility-level clustering in all analyses using the Stata 'svy' commands. The mean scores of the
40
41 211 outcome and predictor variables were determined. Higher mean scores indicate higher IRC_{RMC}
42
43 212 and ORC_{RMC}. Pearson's correlation was used to evaluate the relationship between IRC_{RMC} and
44
45 213 ORC_{RMC}, change efficacy and change commitment, and resource availability and adequacy.

46
47
48
49 214 Principal component analysis (PCA) was used to construct separate composite indices for the
50
51 215 study-specific tools assessing providers' perceptions of women's rights, their awareness of
52
53 216 mistreatment in their facilities, and the availability of resources for RMC practice. Details are
54
55 217 provided in Additional file 5. The first components explained 17.9%, 23.2% and 16.5% of the

218 variance for each of these scales respectively. These PCA scores were then used in the bivariate
 219 and multiple regression analysis as potential predictors.

220 Simple linear regression was done to assess the bivariate relationship between the two
 221 numerical outcomes and the predictor variables. Predictors with a p-value ≤ 0.2 were included
 222 in the final multiple regression models for each outcome variable. All predictors were added
 223 simultaneously. Multicollinearity analysis was conducted after the regressions. Predictor
 224 variables with a high variance inflation factor (>10.0) were excluded from the model.

225 Patient and public involvement

226 A prior qualitative study of pregnant women's perceptions of RMC²⁷ informed this study, the
 227 study location, and many of the variables assessed. The women described their experience of
 228 childbirth care and queried the readiness of the health providers to provide such care.

31 Results

32 Socio-demographic profile

321
 322 212 health providers finally completed the survey, slightly above the required sample size of
 323 210 (with the slight oversampling due to separate data collection by two data collectors). The
 324 breakdown by their professional group as shown in Table 1. Their overall mean age was 44.0.
 325 The doctors were the youngest with a mean age (in years) of 38.9 while the health auxiliaries
 326 were the oldest with a mean age of 49.3. Overall, the respondents had an average of >15 years
 327 post-training work experience, which included an average of about 6 years working at the study
 328 facility.

329 **Table 1: Providers' socio-demographic profile by provider type**

Variables	Doctor n=38	Nurse n=128	CHEW/CHO n=29	Auxiliary n=18	Total n=212
Age					
Mean \pm SD	38.9 \pm 9.9	44.6 \pm 9.4	44.5 \pm 9.7	49.3 \pm 10.5	44.0 \pm 9.9
Median (IQR)	40 (31- 46)	44 (39 - 52)	46 (39 - 50)	52 (40 - 56)	44 (38 - 52)
Sex					
Male	20 (52.3)	0 (0.0)	2 (8.5)	0 (0.0)	22 (10.4)

Female	18 (47.7)	127 (100.0)	26 (91.5)	18 (100.0)	190 (89.6)
Type of health facility					
Primary health facility	3 (8.7)	9 (7.1)	29 (100.0)	18 (100.0)	59 (27.9)
Secondary health facility	34 (91.3)	119 (92.9)	0 (0.0)	0 (0.0)	153 (72.1)
LGA					
Ibadan North	23 (61.9)	61 (47.8)	3 (12.0)	2 (9.7)	89 (42.2)
Ibadan North East	5 (14.6)	14 (11.2)	5 (16.2)	2 (8.8)	26 (12.3)
Ibadan North West	6 (15.6)	20 (15.9)	12 (41.6)	3 (15.0)	41 (19.3)
Ibadan South East	1 (2.9)	1 (0.8)	4 (14.8)	7 (41.8)	14 (6.6)
Ibadan South West	2 (5.1)	31 (24.3)	4 (15.3)	4 (24.7)	42 (19.7)
Study Health facilities					
Facility 1	1 (2.9)	2 (1.4)	3 (12.0)	2 (9.7)	8 (8.7)
Facility 2	23 (59.6)	59 (46.4)	0 (0.0)	0 (0.0)	82 (38.5)
Facility 3	0 (0.0)	2 (1.2)	5 (16.2)	2 (8.8)	9 (3.7)
Facility 4	5 (44.6)	13 (10.0)	0 (0.0)	0 (0.0)	18 (8.6)
Facility 5	1 (3.6)	1 (1.1)	12 (41.6)	3 (15.0)	17 (8.2)
Facility 6	5 (12.0)	19 (14.8)	0 (0.0)	0 (0.0)	23 (11.1)
Facility 7	0 (0.0)	3 (2.6)	5 (15.3)	4 (24.7)	12 (5.7)
Facility 8	2 (5.1)	28 (21.7)	0 (0.0)	0 (0.0)	30 (13.9)
Facility 9	1 (2.3)	1 (1.0)	4 (14.8)	7 (41.8)	13 (6.6)
Years of experience					
Mean \pm SD	10.4 \pm 7.7	18.2 \pm 9.9	10.5 \pm 7.5	13.6 \pm 11.0	15.4 \pm 9.9
Median (IQR)	10 (3 - 14)	18 (11 - 25)	8 (4 - 17)	9 (6 - 19)	14 (7 - 23)
Years working in study facility					
Mean \pm SD	3.2 \pm 3.5	8.2 \pm 6.0	2.7 \pm 1.9	3.7 \pm 2.0	6.0 \pm 5.6
Median (IQR)	2 (0.5 - 5)	7 (4 - 11)	3 (1 - 4)	4 (3 - 5)	5 (2 - 10)
Income (in USD)					
Median (IQR)	658 (526 - 921)	500 (289 - 553)	270 (132 - 395)	99 (26 - 191)	463 (263 - 605)

Note: IQR – Interquartile range

RMC- women's rights and mistreatment and needed resources

Overall, 35.9% of the providers had heard of RMC. This consisted mainly of the doctors (60%) and the least (19.1%) being the health auxiliaries. Nonetheless, after RMC had been explained to them, 70% of all the providers agreed that RMC could be implemented in their facilities.

As shown in Figure 1, 72.9% of the health providers stated that women delivering in their facility were always denied a birth companion, 63.9% were aware of women not being allowed to decide their birth position, and 36.7% had witnessed restrictions on mobility during labour. Correspondingly, only 19.9% of health providers believed that women should always have the right to decide their birth position, 38.7% agreed that women could be mobile during labour, and 50.7% supported women having a birth companion (Figure 1). Only 20.4% accepted that women should always have unrestricted access to their hospital records.

Figure 2 indicates providers' perceptions of the availability of essential 18 WHO-recommended resources for implementing RMC. The least available resource was RMC educational materials

254 (7.7%), followed by guidelines (8.2%). Approximately 10-15% of the providers agreed to the
 255 availability of private spaces to support birth companions, in-service training on RMC,
 256 suggestion boxes, and adequately trained staff on RMC. However, 63.0% of them agreed to
 257 have curtains and screens for privacy during childbirth.

258 The mean scores for all the study scales are shown in Table 2. The health providers were well
 259 aware of the mistreatment of women during childbirth in their health facilities across the 12
 260 items with a high mean score of 3.9 ± 0.5 out of a maximum of 5. However, the mean score of
 261 3.9 ± 0.5 out of 5 also indicates high acceptance of the rights they believe women should always
 262 be granted during childbirth.

263 **Individual and organisational readiness for change to RMC practice**

264 In assessing organisational readiness for change to RMC (ORC_{RMC}), the health providers scored
 265 high on their commitment to the change and their change efficacy, which is their perceived
 266 ability to implement the change (Table 2). These two constructs were strongly positively
 267 correlated (ρ : 0.830, 95% CI: 0.783-0.868, $p < 0.001$). Combined, this gave a high mean
 268 organisational readiness for change (ORC_{RMC}) score of 4.01 ± 0.9 , which is 75.3% of the
 269 maximum obtainable mean score of 5. The health providers had even higher individual
 270 readiness for change to RMC (IRC_{RMC}), with a mean score of 4.23 ± 0.6 , 80.8% of the maximum.
 271 Organisational readiness was only moderately but significantly correlated with individual
 272 readiness for change to RMC (ρ : 0.407, 95% CI: 0.29-0.51, $p < 0.001$).

273 **Table 2: Average provider perceptions for different study scales (n=212)**

Analytical Category	Scale	Mean \pm SD	95% CI
Outcomes	Change commitment	4.05 ± 1.0	3.8– 4.3
	Change efficacy	3.96 ± 0.9	3.6– 4.3
	Organisational readiness for change (ORC_{RMC})	4.01 ± 0.9	3.7– 4.3
	Individual readiness for change (IRC_{RMC})	4.23 ± 0.6	4.1– 4.4
Predictors	Awareness of mistreatment during childbirth in their facilities	3.90 ± 0.5	3.7– 4.1
	Women's rights during childbirth	3.85 ± 0.5	3.8 - 4.0
	Change valence	4.46 ± 0.8	4.3– 4.6
	Informational assessments	3.30 ± 0.7	3.1 - 3.4
	Availability of resources to implement RMC in their facilities	2.70 ± 0.6	2.5– 2.9

Core self-evaluation	4.34 ± 0.5	4.3 – 4.4
Job satisfaction	3.70 ± 0.6	3.6 – 3.8

274

275 **Change valence and informational assessments**

276 The health providers scored high on how much they value the change to RMC, with a mean of
 277 4.46±0.8 out of 5 (Table 2). They, however, scored lower in their informational assessments
 278 ((3.30±0.7), which describes their perceptions on the adequacy of the available resources to
 279 implement the change to RMC practice in their facilities. The providers' mean score for the
 280 availability of the WHO-recommended resources to implement RMC was even lower
 281 (2.70±0.6), 42.5% of the maximum. There was a mild but significant positive relationship
 282 between their perceived availability and adequacy of the resources needed to implement RMC
 283 in their facilities, (rho: 0.263, 95% CI: 0.133-0.384, p=0.0001). Notwithstanding these
 284 perceived deficiencies, the health providers indicated relatively high levels of job satisfaction
 285 and core self-evaluation- that is, they had high self-esteem, locus of control, emotional stability
 286 and generalised self-efficacy (Table 2).

287 **Factors associated with individual readiness for change (IRC_{RMC}) and** 288 **organisational readiness for change (ORC_{RMC}) to RMC practice**

289

290 Table 3 shows the bivariate and multiple regression analysis for IRC_{RMC}, while Table 4 shows
 291 the analysis for ORC_{RMC}. The health providers' change valence and informational assessments
 292 were significantly associated with IRC_{RMC} in the multiple regression analysis, increasing
 293 IRC_{RMC} scores by (β: 0.40, 95% CI: 0.11–0.70, p=0.015) and (β: 0.07, 95% CI: 0.01–0.13,
 294 p=0.032) respectively. Doctors and nurses had significantly higher IRC_{RMC} than health
 295 assistants, in the bivariate analysis but this was no longer significant after adjusting for other
 296 covariates.

297 IRC_{RMC} varied significantly between health providers from different health facilities in the
 298 bivariate analysis but this was no longer the case in the multiple regression analysis. None of

the known predictors of individual readiness for change (providers' job satisfaction and core self-evaluation), nor the newly proposed ones (perceived rights of women, years of experience, income), was significantly associated with IRC_{RMC}.

Table 3: Analysis of factors associated with health providers' IRC_{RMC}

Covariates	Simple linear regression			Multiple linear regression		
	Crude Coeff.	95% CI	p-value	Adjusted Coeff.	95% CI	p-value
Health providers' age	-0.003	-0.01 - 0.007	0.497			
Sex						
Female	Ref	-	-	Ref	-	-
Male	-0.21	-0.02 - 0.44	0.065	-0.14	-0.84 - 1.13	0.743
Study Local Government Area						
Ibadan North	Ref	-	-			
Ibadan North East	0.02	-0.54 - 0.58	0.946			
Ibadan North West	-0.22	-0.47 - 0.03	0.078			
Ibadan South East	-0.45	-0.52 - 0.37	<0.001			
Ibadan South West	-0.09	-0.32 - 0.14	0.383			
Health facility						
Facility 1	0.19	0.10 - 0.19	<0.001	0.35	-0.01 - 0.70	0.053
Facility 2	Ref	-	-	Ref	-	-
Facility 3	-0.53	-0.53 - 0.53	<0.001	-0.06	-0.39 - 0.27	0.675
Facility 4	0.29	0.29 - 0.29	<0.001	0.07	-0.05 - 0.18	0.218
Facility 5	-0.37	0.37 - -0.37	<0.001	-0.23	-0.51 - 0.04	0.087
Facility 6	-0.06	-0.06 - -0.06	<0.001	0.04	-0.07 - 0.14	0.423
Facility 7	0.12	0.12 - 0.12	<0.001	0.22	-0.13 - 0.54	0.175
Facility 8	-0.10	-0.10 - -0.10	<0.001	0.0002	-0.09 - 0.09	0.970
Facility 9	-0.42	-0.42 - -0.42	<0.001	0.03	-0.30 - 0.35	0.844
Providers' type of health facility						
Primary health facility	Ref	-	-			
Secondary health facility	0.23	0.56 - 0.09	0.135			
Professional cadre						
Doctor	0.43	0.04 - 0.83	0.036	-0.13	-0.46 - 0.19	0.360
Nurse	0.37	0.05 - 0.70	0.030	Ref	-	-
CHEW/ CHO	0.08	-0.06 - 0.21	0.233	-0.19	-0.63 - 0.24	0.329
Health Assistant/ Aide	Ref	-	-	-0.16	-0.50 - 0.18	0.296
Monthly income (in USD/ 1000)	-2.36	-0.06 - 5.28	0.097	0.05	-0.03 - 0.13	0.187
Years of professional experience	0.01	0.004 - 0.03	0.106	0.004	-0.02 - 0.03	0.644
Years of experience in the health facility	0.004	-0.02 - 0.031	0.727			
Awareness of the mistreatment of women	0.01	-0.04 - 0.05	0.712			
Perceived women's rights during childbirth	0.04	-0.05 - 0.11	0.357			
Ever heard of RMC (n=170)						
Yes	-0.02	-0.33 - 0.30	0.883			
No	Ref	-	-			
Perception of RMC being implementable						
Agreed	0.10	-0.34 - 0.53	0.620			
Indifferent	Ref	-	-			
Disagreed	0.06	-0.46 - 0.58	0.794			
Change valence (value for RMC practice)	0.45	0.19 - 0.71	0.005	0.40	0.11 - 0.70	0.015
RMC Informational assessment	0.07	0.15 - 0.42	0.001	0.07	0.01 - 0.13	0.032
Provider perceptions on available resources	0.03	-0.02 - 0.09	0.182			
Provider job satisfaction	0.010	-0.03 - 0.22	0.105	0.004	-0.13 - 0.14	0.953
Provider core self-evaluation	0.25	0.01 - 0.50	0.055	0.09	-0.22 - 0.39	0.513
*Male # Doctor				0.15	-1.01 - 1.31	0.765

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36

Constant 1.76 1.37 – 2.14 **<0.001**
n=212; R²= 0.4363; p<0.001

303 Note: Ref: means the reference category; 95% CI: 95% Confidence Interval; Predictors with p-value ≤0.2 from the simple
304 linear regression analysis were included in the multiple regression model; The Mean variance inflation factor vif for the
305 multiple regression model is =2.33, significant p-values in bold. Male # Doctor- Interaction between gender and profession

306

307 Change valence and informational assessments were also significantly associated with ORC_{RMC}
308 (Table 4). A unit increase in the health providers' change valence and informational
309 assessments increased their perceived ORC_{RMC} by (β: 0.47, 95% CI: 0.21–0.74, p=0.004) and
310 (β: 0.43, 95% CI: 0.22-0.63, p=0.002) units respectively, after adjusting for other covariates.
311 Also, each additional 10 years of work experience significantly increased ORC_{RMC} by (β: 0.08,
312 95% CI: 0.01–0.2, p=0.024) and each \$1000 increase in providers' monthly income increased
313 their perceived ORC_{RMC} by (β: 0.08, 95% CI:0.02–0.15, p=0.021). There were significant
314 varied associations (positively or negatively) between the health providers' facility of practice
315 and their ORC_{RMC} in relation to the reference facility. The only exception was for Facility 4, a
316 secondary health facility in one of the LGAs.

317 **Table 4: Analysis of factors associated with health providers' ORC_{RMC}**
318

Covariates	Simple linear regression			Multiple regression		
	Crude Coeff.	95% CI	p-value	Adjusted Coeff.	95% CI	p-value
Health providers' age	-0.01	-0.02 – 0.02	0.916			
Sex						
Female	Ref	-	-	Ref	-	-
Male	-0.21	-0.09 – 0.50	0.146	0.15	-0.11 – 0.41	0.213
Study Local Government Area						
Ibadan North	Ref	-	-			
Ibadan North East	0.34	-0.26 – 0.94	0.226			
Ibadan North West	-0.22	-0.42 – 0.02	0.034			
Ibadan South East	-0.46	-0.59 – 0.33	<0.001			
Ibadan South West	-0.27	-1.21 – 0.66	0.510			
Health facility in LGA						
Facility 1	0.43	0.43 – 0.43	<0.001	0.38	0.30 – 0.46	<0.001
Facility 2	Ref	-	-	-	-	-
Facility 3	-0.23	-0.23 – -0.23	<0.001	0.24	0.12 – 0.35	0.002
Facility 4	0.65	0.65 – 0.65	<0.001	0.16	-0.03 – 0.35	0.087
Facility 5	-0.09	-0.09 – -0.09	<0.001	-0.29	-0.40 – -0.19	<0.001
Facility 6	-0.24	-0.24 – -0.24	<0.001	-0.11	-0.16 – -0.07	0.001
Facility 7	0.63	0.63 – 0.63	<0.001	0.56	0.54 – 0.57	<0.001
Facility 8	-0.54	-0.54 – -0.54	<0.001	-0.41	-0.47 – -0.36	<0.001
Facility 9	-0.41	-0.41 – -0.41	<0.001	0.11	0.02 – 0.20	0.024

1							
2	Providers' type of health facility						
3	Primary health facility	Ref	-	-			
4	Secondary health facility	0.09	-0.68–0.50	0.717			
5	Professional cadre						
6	Doctor	0.31	-0.50–1.12	0.391			
7	Nurse	-0.07	-0.88–0.75	0.857			
8	CHEW/ CHO	0.09	-0.38–0.56	0.667			
9	Health Assistant/ Aide	Ref	-	-			
10	Monthly income (in USD/ 1000)	0.26	-0.05–0.56	0.083	0.08	0.02–0.15	0.021
11	Years of professional experience /10 years	0.05	0.02–0.3	0.034	0.08	0.01–0.2	0.024
12	Years of experience in the health facility	-0.004	-0.03–0.02	0.678			
13	Awareness of the mistreatment of women	0.02	-0.06–0.09	0.650			
14	Perceived women's rights during childbirth	0.02	-0.12–0.16	0.767			
15	Ever heard of RMC (n=170)						
16	Yes	0.10	-0.27–0.46	0.553			
17	No	Ref	-	-			
18	Perceptions of RMC being implementable						
19	Agreed	0.60	-0.02–1.23	0.056	0.19	-0.08–0.45	0.148
20	Indifferent	Ref	-	-	Ref	-	-
21	Disagreed	-0.09	-0.76–0.58	0.765	-0.12	-0.60–0.36	0.570
22	Change valence (value for RMC practice)	0.74	0.47–1.01	<0.001	0.47	0.21–0.74	0.004
23	RMC Informational assessment	0.72	0.40–1.05	0.001	0.43	0.22–0.63	0.002
24	Provider perceptions on available resources	-0.002	-0.25–0.25	0.984			
25	Provider job satisfaction	0.23	-0.08–0.55	0.125	0.05	-0.10–0.20	0.477
26	Provider core self-evaluation	0.15	-0.38–0.68	0.521			
27	Constant				0.06	-1.28–1.41	0.915
28					<i>n=212; R²= 0.6016; p<0.001</i>		

319 Note: Ref: means the reference category; CI: 95% Confidence Interval; Predictors with a p-value ≤ 0.2 from the bivariate
 320 analysis (simple linear regression) were included in the multiple regression model; The Mean variance inflation factor vif
 321 for the multiple regression model is =1.55, Significant p-values in bold.

322

323 Discussion

324 This is the first study to explore individual and organisational readiness for change to RMC
 325 practice, and the associated predictors. The health providers had a high level of awareness of
 326 the mistreatment of women but also a high general acceptance of women's rights during
 327 childbirth. However, there were some rights, such as being allowed a birth companion, that only
 328 a few providers regarded as essential, and these were then seldom practised. Nonetheless, the
 329 health providers scored high in their perceived IRC_{RMC} and ORC_{RMC} . IRC_{RMC} and ORC_{RMC}
 330 were only moderately correlated in this analysis. Higher change valence and informational
 331 assessment of the adequacy of resources increased not only ORC, as has been found
 332 previously,^{24,28} but also IRC_{RMC} . Job satisfaction and the providers' core self-evaluation, which
 333 have been shown to influence IRC,^{13,29} had no statistically significant effect on IRC_{RMC} in this
 334 study. The provider's years of work experience, their monthly income (individual

1
2 335 characteristics) and their health facility of practice (a workplace characteristic) significantly
3
4 336 influenced ORC_{RMC} .
5
6

7 337 This study has provided an understanding of the state of readiness for change to RMC practice,
8
9 338 eliminating it as a possible implementation problem for RMC practice in the study setting. We
10
11 339 have established that IRC_{RMC} and ORC_{RMC} have a positive influence on each other. This study
12
13 340 has also further confirmed the critical role of change valence and informational assessments in
14
15 341 increasing both organisational and individual readiness for change to RMC practice. These
16
17 342 findings have programmatic and policy implications for the designing of RMC implementation
18
19 343 programs. The effect of employees' perceived value for newly introduced programs may also
20
21 344 be evaluated on the program intervention and implementation outcomes.
22
23
24

25
26 345 The brevity of the organisational readiness for implementing change (ORIC) tool used to assess
27
28 346 ORC_{RMC} among the health care providers studied was also beneficial. This is in contrast to other
29
30 347 instruments assessing organisational readiness for change with a much higher number of
31
32 348 constructs and variables.^{12,30} The ORIC tool is a standardised instrument that has been validated
33
34 349 among health worker populations in Western countries^{24,31,32} and only in South Africa³³, with
35
36 350 a similar population as found in our study. All categories of health providers involved in
37
38 351 maternal care across cadres within the primary and secondary health facilities were studied.
39
40 352 This may facilitate stakeholder engagement during the RMC implementation process and
41
42 353 possible early adoption of the change.
43
44
45
46
47

48 354 The study findings however failed to establish a significant relationship between the providers'
49
50 355 readiness for a change to RMC and their perceptions of women's rights during childbirth.
51
52 356 Respectful maternity care is premised on the fundamental human rights of women to receive
53
54 357 dignified care.³⁴ It would have been expected that provider perceptions of women's rights
55
56 358 would be positively associated with their readiness for change. The relationship was in the
57
58
59
60

1
2 359 correct direction but not statistically significant. The provider's low perceptions of resource
3
4 360 availability to implement RMC did also not significantly reduce their IRC_{RMC} and ORC_{RMC}.
5
6

7 361 This study had some limitations. It was a relatively small study and its geographical extent was
8
9 362 limited to one Metro in Nigeria which may not be representative of similar facilities and
10
11 363 providers in other regions of Nigeria. Tertiary health facilities were not included because there
12
13 364 was only one tertiary health facility serving populations across the five LGAs studied. Social
14
15 365 desirability bias may have influenced some of the providers' responses positively to the
16
17 366 availability of resources and their perception of women's rights during childbirth. To mitigate
18
19 367 this, the data collectors stressed the academic purpose of the research to the providers when
20
21 368 obtaining informed consent. Limited awareness of RMC, as found in this study, may affect an
22
23 369 accurate assessment of readiness for change. We attempted to address this by educating the
24
25 370 providers on RMC concepts before assessing their readiness for change to RMC practice.
26
27
28
29
30

31 371 Health providers cannot truly be ready to implement RMC if they do not support certain
32
33 372 women's rights during childbirth. This would result in persistent mistreatment and may prevent
34
35 373 a positive change to RMC practice. The most common forms of mistreatment to women during
36
37 374 childbirth in the study health facilities were being denied birth companions, not being allowed
38
39 375 to decide on a birth position, and being denied mobility in labour. All three forms of
40
41 376 mistreatment were also reported by Tanzanian women in a qualitative study of the perspectives
42
43 377 of mothers and fathers on mistreatment during childbirth.³⁵ Several other studies have reported
44
45 378 these forms of mistreatment experienced by women during childbirth.³⁶⁻³⁹ According to the
46
47 379 WHO,^{40,41} having a birth companion during labour provides emotional support, reduces labour
48
49 380 pain and strengthens the woman's capability to deliver. The WHO has also recommended that
50
51 381 women are supported to deliver in their preferred birth position because alternative birth
52
53 382 positions, such as standing to deliver, are safe and may result in shorter labour from better foetal
54
55 383 alignment.^{38,40} It has also been reported that mobility during the first stage of labour is safe.³⁸
56
57
58
59
60

1
2 384 Denying women autonomy, or not respecting women's choices during childbirth without a
3
4 385 justifiable medical reason, constitutes mistreatment that negatively affects their overall
5
6 386 childbirth experience.⁴²
7
8

9
10 387 The health providers perceived that women should always have the right to full information
11
12 388 about their care and to receive their care in privacy. Unfortunately, many may not practice it
13
14 389 for several reasons, including unconscious behaviour, an abusive work culture, and perceived
15
16 390 excessive workload among others.⁴³ About 33% of maternity care providers in Western Kenya
17
18 391 attested that they do not often give explanations before conducting procedures on women during
19
20 392 childbirth, and 73% do not wait to obtain consent before conducting these examinations.⁴³ This
21
22 393 is similar to the inconsistent support for women's right to autonomy found among Australian
23
24 394 midwives and doctors.⁴⁴ They confirmed their support for women's autonomy, but override
25
26 395 women's decisions sometimes on safety reasons, claiming full accountability for every
27
28 396 pregnancy outcome. Women should be included when safety decisions are being made during
29
30 397 childbirth. When this is not done, women may conclude it is an abuse of their rights. Tanzanian
31
32 398 women related their abusive maternity care experiences as a deviation from their basic human
33
34 399 rights.⁴⁵ Hence, advocating for women's rights among health providers should be a key
35
36 400 component of RMC-promoting interventions.
37
38
39
40
41

42
43 401 Nonetheless, the health providers scored high in their perceived IRC_{RMC} and ORC_{RMC}. Few
44
45 402 studies had reported the overall organisational readiness for implementing change (ORIC) in
46
47 403 health programmes as mean scores using the ORIC tool. Many either report the mean change
48
49 404 commitment and change efficacy as individual scores,²¹ or as total scores.³¹ The ORC_{RMC} score
50
51 405 in our study was higher than the average of the change commitment and change efficacy scores
52
53 406 found when the nurse-reported ORC for policy change in acute care hospitals in Switzerland
54
55 407 was assessed.²¹ There was no comparable study of individual readiness for change using the
56
57 408 same instrument applied in the health industry. A scoping review to explore the nature and
58
59
60

1
2 409 extent of literature published on individual readiness for change in the health sector yielded no
3
4 410 study found in health.⁴⁶
5
6
7 411 IRC_{RMC} and ORC_{RMC} in our study were significantly positively correlated. Thus, a positive
8
9 412 increase in IRC_{RMC} by strengthening its facilitating factors should also reflect in increased
10
11 413 ORC_{RMC} . This is similar to the postulations by Weiner in his theory where he stated that
12
13 414 “*Organisational readiness is likely to be highest when organisational members not only want*
14
15 415 *to implement an organisational change but also feel confident that they can do so*” (page 3).¹¹
16
17
18
19 416 Weiner theorised that organisational readiness was most strongly influenced by change valence
20
21 417 and informational assessments.¹¹ The health providers’ change valence positively influenced
22
23 418 both their IRC_{RMC} and ORC_{RMC} significantly in our study. Change valence also positively and
24
25 419 significantly influenced organisational readiness for change amongst employees of a private
26
27 420 hospital changing to a tertiary hospital.⁴⁷ It also strongly correlated with individual readiness
28
29 421 for change in the automobile industry.⁴⁸ There have been limited assessments of individual
30
31 422 readiness for change in health-related industries.
32
33
34
35
36 423 Informational assessment is the perceived adequacy of the available resources such as the
37
38 424 equipment, expertise, skills, and time needed to implement the change. Informational
39
40 425 assessments also significantly influenced both IRC_{RMC} and ORC_{RMC} in this analysis.
41
42 426 Informational assessment of their perceived resource adequacy was found to be positively and
43
44 427 significantly correlated with their perceived resource availability in this study. This suggests
45
46 428 that if providers’ perception of resource availability is high, they would be readier for a change
47
48 429 to RMC practice. However, the providers had a low perception of the availability of
49
50 430 recommended resources for RMC implementation in our study setting. This may have
51
52 431 explained their fairly low perceived resource adequacy.
53
54
55
56
57
58
59
60

1
2 432 Thus, additional resource requirements are critical drivers of RMC implementation.¹¹ For
3
4 433 example, only 9% of the health providers agreed that facilities to support birth companions
5
6 434 were available. This would include a private space achievable with the use of curtains. In an
7
8 435 observational study of childbirths across four countries, Nigeria had the lowest proportion of
9
10 436 women (6.9%) in which curtains were used to ensure privacy.⁴⁹ This is a challenge that may
11
12 437 prevent Nigerian women from receiving RMC as there is limited funding to the Nigerian health
13
14 438 system to provide these essential RMC resources. There is a need to identify cost-effective
15
16 439 strategies to address these system challenges.

17
18
19
20
21 440 ORC_{RMC} was found to be significantly higher among health providers with longer years of work
22
23 441 experience. They are a population to target in RMC-promoting interventions. The nurses' years
24
25 442 of work experience also positively influenced their change commitment, one of the measures
26
27 443 of organisational readiness, in Switzerland's acute care hospitals.²¹ The providers' workplace
28
29 444 setting, as indicated by their health facility of practice significantly influenced their perceived
30
31 445 ORC_{RMC}. This was significantly positive for most of the primary health care facilities across the
32
33 446 LGAs and was significantly negative for two of the secondary health facilities studied.
34
35 447 Interestingly, both the primary and secondary health facilities in the Ibadan North-West LGA
36
37 448 were significantly associated with a decreased ORC_{RMC}. According to the literature, the
38
39 449 workplace contextual fit is critical to providers' readiness for change to RMC as it informs the
40
41 450 adaptability of the local context to the globally defined RMC practice, the quality of the
42
43 451 implementation, and whether expected RMC implementation outcomes will be achieved.⁵⁰⁻⁵²
44
45 452 There is the need to qualitatively explore which contextual factors within the health facilities
46
47 453 are the most critical barriers to a successful implementation of RMC practice during childbirth.

454 **Conclusions**

455 The three most common forms of mistreatment during childbirth noted by health providers
456
457 458 corresponded with the low recognition of these as rights that women should always receive.
459
460

1
2 457 Our study confirmed the relevance of the organisational and individual readiness for change
3
4 458 constructs to the RMC literature and should prompt more studies on this topic. It is noteworthy
5
6 459 that the health providers in our study perceived themselves and their organisations to be ready
7
8 460 for a change to RMC practice. It would be important to verify in future research if readiness for
9
10 461 change significantly facilitated the implementation of RMC interventions. The main
11
12 462 influencing factors of both IRC_{RMC} and ORC_{RMC} scores in our analysis were a high valuation
13
14 463 of the change (change valence) and the perceived adequacy of resources necessary to implement
15
16 464 the change. Longer serving providers may be a readier population to target during RMC
17
18 465 implementation, as champions to lead a change to RMC practice. Workplace contexts could
19
20 466 significantly influence ORC_{RMC} and should be explored before the implementation of RMC
21
22 467 interventions.
23
24
25
26
27
28
29
30

31 469 ** ** *

32
33
34 470 **Ethics approval and consent to participate:** The research was conducted following the
35
36 471 Declaration of Helsinki. Ethical approvals were obtained from the Human Research Ethics
37
38 472 Committees (HRECs) of the University of the Witwatersrand, Johannesburg (clearance Number
39
40 473 M190658), and the Oyo State Ministry of Health (Ref. Number AD/13/479/1386). Written
41
42 474 consent to continue the interview was obtained from the respondents. The consent form
43
44 475 explained the purpose of the research, and the respondents were asked if they agree to continue
45
46 476 with the research or not. The form was filled out using the REDCap software. For anonymity,
47
48 477 the facilities were referred to by numbers rather than names. The primary and secondary health
49
50 478 facilities were designated with odd and even numbers respectively. Subsequent numbers in
51
52 479 sequence are located in the same LGA. Respondents were given a small jotter with brief
53
54 480 information on respectful maternity care that costs 0.32USD at ₦380=1USD each on
55
56 481 completion of the survey in appreciation of their time and to further educate them. There were
57
58
59
60

1
2 482 no inducements given before participation. A transparent and complete reporting of the research
3
4 483 was done guided by both the STROBE and CROSS checklists.
5
6

7 484 **Data availability statement**

8
9
10 485 The dataset generated and analysed in the current study is available from the Figshare database
11
12 486 (DOI: 10.6084/m9.figshare.19757329).
13
14

15 487 **Competing interests**

16 488 The authors declare that they have no competing interests.
17
18
19

20 489 **Funding**

21
22 490 This research was supported by the Consortium for Advanced Research Training in Africa
23
24 491 (CARTA). CARTA is jointly led by the African Population and Health Research Centre and
25
26 492 the University of the Witwatersrand and funded by the Carnegie Corporation of New York
27
28 493 (Grant No G-19-57145), Sida (Grant No:54100113), Uppsala Monitoring Center, Norwegian
29
30 494 Agency for Development Cooperation (Norad), and by the Wellcome Trust [reference no.
31
32 495 107768/Z/15/Z] and the UK Foreign, Commonwealth & Development Office (No Grant
33
34 496 Number), with support from the Developing Excellence in Leadership, Training and Science in
35
36 497 Africa (DELTAS Africa) programme (No Grant Number). The statements made and views
37
38 498 expressed are solely the responsibility of the Fellow. For open access, the author has applied a
39
40 499 CC BY public copyright licence to any ‘author accepted’ manuscript version arising from this
41
42 500 submission. The funders only provided the funding for the research. They played no role in the
43
44 501 conceptualisation, design and conduct of the research nor the data analysis, interpretation and
45
46 502 development of the manuscript for publication.
47
48
49
50

51 503 **Contributors**

52 504 OTE conceptualised the study, designed the study, acquired and adapted the tools to the study
53
54 505 and obtained the ethical approvals. She was the principal investigator who conducted the data
55
56 506 collection and supervised the research assistants. She analysed the data and wrote the first draft
57
58
59
60

1
2 507 and final manuscripts for publication. SM contributed to the design of the study and the
3
4 508 finalisation of the tools. She also significantly contributed to the revision of the draft manuscript
5
6 509 and approved the final manuscript for publication. DB contributed significantly to the design
7
8 510 of the study, the finalisation of the tools and the data analysis. He significantly revised and
9
10 511 contributed significant intellectual content to the draft manuscript and approved the final
11
12 512 version of the manuscript for publication.
13
14
15

16 513 **Acknowledgements**

17 514 We acknowledge the contributions of Dr Tunde Adedokun, Dr Joshua Akinyemi and Professor
18
19 515 Folusho Owotade for their inestimable advice and support with the data analysis. We also
20
21 516 recognise and appreciate all the health providers who completed the survey despite their hectic
22
23 517 schedules. SM acknowledges the funding support by the South African Medical Research
24
25 518 Council's Mid-Career Scientist Award.
26
27
28
29

30 519 **References**

- 31 520 1. National Population Commission (NPC) [NG] and ICF International. Nigeria
32 521 Demographic and Health Survey 2013 [Internet]. Abuja, Nigeria and Rockville,
33 522 Maryland, USA; 2014 [cited 2017 Jun 12]. Available from:
34 523 <https://dhsprogram.com/pubs/pdf/FR293/FR293.pdf>
- 35 524 2. Bohren MA, Hunter EC, Munthe-kaas HM, Souza JP, Vogel JP. Facilitators and
36 525 barriers to facility-based delivery in low- and middle-income countries: a qualitative
37 526 evidence synthesis. *Reprod Health*. 2014;11(71):1–17.
- 38 527 3. Campbell OMR, Calvert C, Testa A, Strehlow M, Benova L, Keyes E, et al. The scale,
39 528 scope, coverage, and capability of childbirth care [Internet]. Vol. 388, *The Lancet*.
40 529 Elsevier Ltd; 2016 [cited 2018 May 9]. p. 2193–208. Available from:
41 530 [http://dx.doi.org/10.1016/S0140-6736\(16\)31528-8](http://dx.doi.org/10.1016/S0140-6736(16)31528-8)
- 42 531 4. Ogunlaja A, Fehintola O, Ogunlaja I, Popoola G, Idowu A, Awotunde O, et al. “
43 532 Respectful Maternity Care ” or “ Disrespect and Abuse during Maternity Care ”;
44 533 Experience of Pregnant Women in Ogbomoso , South West Nigeria. *Rwanda Med J*.
45 534 2017;74(3):6–9.
- 46 535 5. Ishola F, Owolabi O, Filippi V. Disrespect and abuse of women during childbirth in
47 536 Nigeria: A systematic review. *PLoS One* [Internet]. 2017 [cited 2018 May 21];12(3):1–
48 537 17. Available from: <http://dx.doi.org/10.1371/journal.pone.0174084>
- 49 538 6. World Health Organization. WHO recommendations: Intrapartum care for a positive
50 539 childbirth experience [Internet]. Geneva, Switzerland; 2018 [cited 2018 Aug 8]. 1–200
51 540 p. Available from: [https://www.who.int/reproductivehealth/publications/intrapartum-
52 541 care-guidelines/en/](https://www.who.int/reproductivehealth/publications/intrapartum-care-guidelines/en/)

- 1
2 542 7. Williams CR, Meier BM. Ending the abuse: the human rights implications of obstetric
3 543 violence and the promise of rights-based policy to realise respectful maternity care. *Sex*
4 544 *Reprod Heal Matters*. 2019 Jan 1;27(1).
- 5
6 545 8. Denny E. Mini commentary: Respectful maternity care needs to be the standard for all
7 546 women worldwide. *BJOG* [Internet]. 2018 [cited 2018 May 10];125(8):943. Available
8 547 from: <https://pubmed.ncbi.nlm.nih.gov/29230930/>
- 9
10 548 9. Downe S, Lawrie TA, Finlayson K, Oladapo OT. Effectiveness of respectful care
11 549 policies for women using routine intrapartum services : a systematic review. *Reprod*
12 550 *Health*. 2018;15(23):1–13.
- 13
14 551 10. Holt DT, Armenakis AA, Harris SG, Feild HS. Toward a Comprehensive Definiton of
15 552 Readiness for Change: A Review of Research and Instrumentation. *Res Organ Chang*
16 553 *Dev* [Internet]. 2015 [cited 2019 May 23];16:289–336. Available from:
17 554 <https://www.emeraldinsight.com/doi/abs/10.1016/S0897-3016%2806%2916009-7>
- 18
19 555 11. Weiner BJ. A theory of organizational readiness for change. *Implement Sci* [Internet].
20 556 2009 [cited 2018 Aug 9];4(67):1–9. Available from:
21 557 <http://www.implementationscience.com/content/4/1/67>
- 22
23 558 12. Lehman WEK, Greener JM, Simpson DD. Assessing organizational readiness for
24 559 change. *J Subst Abuse Treat*. 2002;22(4):197–209.
- 25
26 560 13. Vakola M. What’s in there for me? Individual readiness to change and the perceived
27 561 impact of organizational change. *Leadersh Organ Dev J*. 2014;35(3):195–209.
- 28
29 562 14. Toddjasper. EM Defined: Preparedness versus Readiness [Internet]. *Emergency*
30 563 *Management, Homeland Security, Preparedness*. 2012 [cited 2018 Oct 15]. Available
31 564 from: <https://toddjasper.com/2012/02/19/em-defined-preparedness-vs-resdiness/>
- 32
33 565 15. Miake-Lye IM, Delevan DM, Ganz DA, Mittman BS, Finley EP. Unpacking
34 566 organizational readiness for change: An updated systematic review and content
35 567 analysis of assessments. *BMC Health Serv Res*. 2020;20(1):1–13.
- 36
37 568 16. Haffar M, Al-Karaghoulis W, Irani Z, Djebarni R, Gbadamosi G. The influence of
38 569 individual readiness for change dimensions on quality management implementation in
39 570 Algerian manufacturing organisations. *Int J Prod Econ* [Internet]. 2019 [cited 2021
40 571 Aug 31];207:247–60. Available from: <http://dx.doi.org/10.1016/j.ijpe.2016.08.024>
- 41
42 572 17. Warren CE, Ndwiga C, Sripad P, Medich M, Njeru A, Maranga A, et al. Sowing the
43 573 seeds of transformative practice to actualize women’s rights to respectful maternity
44 574 care: Reflections from Kenya using the consolidated framework for implementation
45 575 research. *BMC Womens Health*. 2017;17(1):1–18.
- 46
47 576 18. Ratcliffe HL, Sando D, Lyatuu GW, Emil F, Mwanyika-sando M, Chalamilla G, et al.
48 577 Mitigating disrespect and abuse during childbirth in Tanzania : an exploratory study of
49 578 the effects of two facility-based interventions in a large public hospital. *Reprod Health*
50 579 [Internet]. 2016 [cited 2018 Sep 27];13(79):1–13. Available from:
51 580 <http://dx.doi.org/10.1186/s12978-016-0187-z>
- 52
53 581 19. Kujawski SA, Freedman LP, Ramsey K, Mbaruku G, Mbuyita S, Moyo W, et al.
54 582 Community and health system intervention to reduce disrespect and abuse during
55 583 childbirth in Tanga Region, Tanzania: A comparative before-and-after study. *PLoS*
56 584 *Med*. 2017;14(7):1–16.
- 57
58 585 20. Stata Software. Power and Sample size: Power onemean — Power analysis for a one-

- 1
2 586 sample mean test [Internet]. 2019. p. 1–15. Available from: file:///E:/PhD
3 587 Folder/Respectful maternity care/Very Important for Current PHD
4 588 Research/psspoveronemean (1).pdf
5
- 6 589 21. Sharma N, Geest S De, Herrnschmidt J, Claes V, Bachnick S, Simon M.
7 590 Organizational readiness for implementing change in acute care hospitals : An analysis
8 591 of a cross - sectional , multicentre study. *J Adv Nurs*. 2018;74(12):2798–808.
- 10 592 22. Glen S. Design Effect: Definition, Examples [Internet]. *Statistics How To*. 2015 [cited
11 593 2019 Apr 1]. Available from:
12 594 <https://www.statisticshowto.datasciencecentral.com/design-effect/>
- 14 595 23. Hameed W, Uddin M, Avan BI. Are underprivileged and less empowered women
15 596 deprived of respectful maternity care: Inequities in childbirth experiences in public
16 597 health facilities in Pakistan. *PLoS One*. 2021;16(4 April):1–17.
- 18 598 24. Shea CM, Jacobs SR, Esserman DA, Bruce K, Weiner BJ. Organizational readiness for
19 599 implementing change : a psychometric assessment of a new measure. *Implement Sci*.
20 600 2014;9(7):1–15.
- 22 601 25. Judge TA, Erez A, Bono J., Thoresen CJ. The Core Self-Evaluation Scale (CSES):
23 602 Development of a Measure. *Pers Psychol*. 2003;56:303–31.
- 25 603 [Dataset] [26]. Esan OT, Maswime S, Blaauw D. Data from: Health providers' readiness for
26 604 change to a respectful maternity care practice in Ibadan, Nigeria [Internet]. Figshare
27 605 Data Repository; 2022. Available from: <https://figshare.com/s/4c3a01159121780b77da>
- 29 606 27. Esan OT, Maswime S, Blaauw D. A qualitative inquiry into pregnant women's
30 607 perceptions of respectful maternity care during childbirth in Ibadan Metropolis,
31 608 Nigeria. *Sex Reprod Heal Matters*. 2022;30(1):1–17.
- 33 609 28. Phillips JE. Effects of Change Valence and Informational Assessments on
34 610 Organizational Readiness for Change T [Internet]. Walden University, Cape Town;
35 611 2017 [cited 2018 Sep 27]. Available from:
36 612 <https://scholarworks.waldenu.edu/dissertations/4016/>
- 38 613 29. Win NN, Chotiyaputta V. Measuring Employee Readiness To Change : a Case Study
39 614 of an Organization in Myanmar. *Panyapiwat J*. 2018;10(3):110–24.
- 41 615 30. Helfrich CD, Li Y, Sharp ND, Sales AE. Organizational readiness to change
42 616 assessment (ORCA): Development of an instrument based on the Promoting Action
43 617 on Research in Health Services (PARIHS) framework. *Implement Sci*. 2009;4(38):1–
44 618 13.
- 46 619 31. Geerligs L, Shepherd HL, Butow P, Shaw J, Masya L, Cuddy J, et al. What factors
47 620 influence organisational readiness for change? Implementation of the Australian
48 621 clinical pathway for the screening, assessment and management of anxiety and
49 622 depression in adult cancer patients (ADAPT CP). *Support Care Cancer*.
50 623 2021;29(6):3235–44.
- 52 624 32. Adelson P, Yates R, Fleet JA, McKellar L. Measuring organizational readiness for
53 625 implementing change (ORIC) in a new midwifery model of care in rural South
54 626 Australia. *BMC Health Serv Res*. 2021;21(1):1–6.
- 56 627 33. Leslie HH, West R, Twine R, Masilela N, Steward WT, Kahn K, et al. Measuring
57 628 Organizational Readiness for Implementing Change in Primary Care Facilities in Rural
58 629 Bushbuckridge, South Africa. *Int J Heal Policy Manag [Internet]*. 2020;11(7):912–8.

- 1
2 630 Available from: <https://doi.org/10.34172/ijhpm.2020.223>
3
4 631 34. White Ribbon Alliance. Respectful Maternity Care: The Universal Rights of
5 632 Childbearing Women [Internet]. The White Ribbon Alliance for Safe Motherhood.
6 633 2011 [cited 2021 Feb 1]. Available from:
7 634 [https://www.who.int/woman_child_accountability/ierg/reports/2012_01S_Respectful_](https://www.who.int/woman_child_accountability/ierg/reports/2012_01S_Respectful_Maternity_Care_Charter_The_Universal_Rights_of_Childbearing_Women.pdf)
8 635 [Maternity_Care_Charter_The_Universal_Rights_of_Childbearing_Women.pdf](https://www.who.int/woman_child_accountability/ierg/reports/2012_01S_Respectful_Maternity_Care_Charter_The_Universal_Rights_of_Childbearing_Women.pdf)
9
10 636 35. Mselle LT, Kohi TW, Dol J. Humanizing birth in Tanzania: A qualitative study on the
11 637 (mis) treatment of women during childbirth from the perspective of mothers and
12 638 fathers. *BMC Pregnancy Childbirth*. 2019;19(1):1–11.
13
14 639 36. Balde MD, Nasiri K, Mehrtash H, Soumah AM, Bohren MA, Diallo BA, et al. Labour
15 640 companionship and women’s experiences of mistreatment during childbirth: Results
16 641 from a multi-country community-based survey. *BMJ Glob Heal*. 2020;5(e003564):1–
17 642 10.
18
19 643 37. Afulani P, Kusi C, Kirumbi L, Walker D. Companionship during facility-based
20 644 childbirth: results from a mixed-methods study with recently delivered women and
21 645 providers in Kenya. *BMC Pregnancy Childbirth* 2018 181 [Internet]. 2018 May 10
22 646 [cited 2021 Oct 10];18(1):1–28. Available from:
23 647 [https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-018-1806-](https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-018-1806-1)
24 648 [1](https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-018-1806-1)
25
26 649 38. Lawrence A, Lewis L, Hofmeyr GJ, Dowswell T, Styles C. Maternal positions and
27 650 mobility during first stage labour. *Cochrane Database Syst Rev*. 2013;(8).
28
29 651 39. Lugina H, Mlay R, Smith H. Mobility and maternal position during childbirth in
30 652 Tanzania: an exploratory study at four government hospitals. *BMC Pregnancy*
31 653 *Childbirth* 2004 41 [Internet]. 2004 Feb 19 [cited 2021 Oct 10];4(1):1–10. Available
32 654 from: [https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-](https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-4-3)
33 655 [4-3](https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-4-3)
34
35 656 40. World Health Organization. Standards for improving quality of maternal and newborn
36 657 care in health facilities [Internet]. Geneva,, Switzerland: WHO Press; 2016 [cited 2018
37 658 Oct 16]. 84 p. Available from:
38 659 [https://www.who.int/maternal_child_adolescent/documents/improving-maternal-](https://www.who.int/maternal_child_adolescent/documents/improving-maternal-newborn-care-quality/en/)
39 660 [newborn-care-quality/en/](https://www.who.int/maternal_child_adolescent/documents/improving-maternal-newborn-care-quality/en/)
40
41 661 41. WHO | Why having a companion during labour and childbirth may be better for you.
42 662 WHO [Internet]. 2019 [cited 2021 Oct 10]; Available from:
43 663 <http://www.who.int/reproductivehealth/companion-during-labour-childbirth/en/>
44
45 664 42. Mirzaee Rabor F, Taghipour A, Najmabadi KM, Fattahi Masoum SH, Pour MF.
46 665 Respect to women’s autonomy in childbirth: A qualitative study. *Iran Red Crescent*
47 666 *Med J*. 2017;19(12).
48
49 667 43. Afulani PA, Afulani PA, Buback L, Kelly AM, Kirumbi L, Cohen CR, et al. Providers’
50 668 perceptions of communication and women’s autonomy during childbirth: A mixed
51 669 methods study in Kenya. *Reprod Health*. 2020 Jun 3;17(1).
52
53 670 44. Edwards N. Maternity care providers’ perceptions of women’s autonomy and the law.
54 671 *AIMS J*. 2015;27(1):22.
55
56 672 45. Miltenburg AS, Lambermon F, Hamelink C, Meguid T. Maternity care and Human
57 673 Rights: what do women think? *BMC Int Health Hum Rights* [Internet]. 2016 [cited

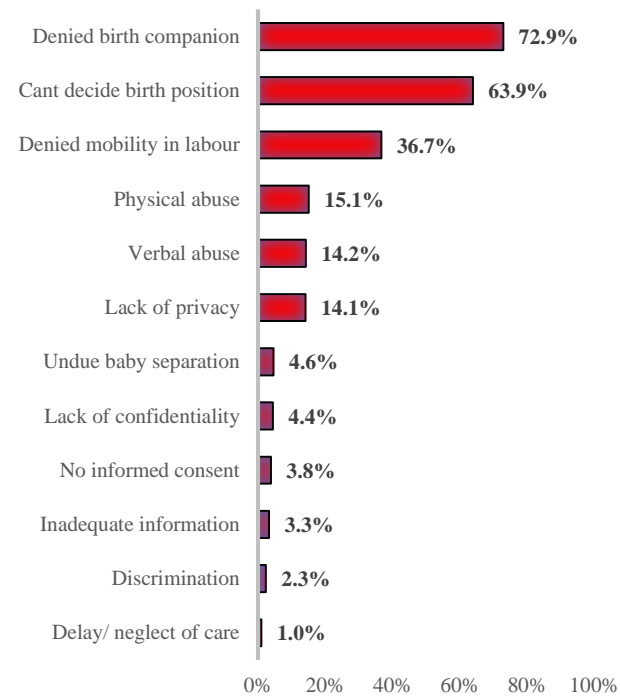
- 1
2 674 2018 Jun 16];16(17):1–10. Available from: [http://dx.doi.org/10.1186/s12914-016-](http://dx.doi.org/10.1186/s12914-016-0091-1)
3 675 0091-1
4
5 676 46. Beasley L, Grace S, Horstmanshof L. Assessing individual readiness for change in
6 677 healthcare: a review of measurement scales. *J Health Organ Manag* [Internet]. 2021 Jan
7 678 1 [cited 2021 Mar 10];35(8):1062–79. Available from: [https://doi.org/10.1108/JHOM-](https://doi.org/10.1108/JHOM-10-2020-0414)
8 679 10-2020-0414
9
10 680 47. Trisnawati A, Damayanti N, Novita RD. How Change Valence Impacts Readiness to
11 681 Change In Teaching Hospital. *Eur J Mol Clin Med*. 2020;07(05):310–6.
12
13 682 48. AbuTahoun TNB, Khan N. The Management Role in Promoting Individual Readiness
14 683 for Change. *Int Conf Manag Inf Syst* [Internet]. 2019 [cited 2021 Jul 28];29:217–22.
15 684 Available from:
16 685 [https://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=141539752&site=e-](https://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=141539752&site=ehost-live)
17 686 [host-live](https://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=141539752&site=ehost-live)
18
19 687 49. Asefa A, McPake B, Langer A, Bohren MA, Morgan A. Imagining maternity care as a
20 688 complex adaptive system: understanding health system constraints to the promotion of
21 689 respectful maternity care. *Sex Reprod Heal Matters* [Internet]. 2020 [cited 2021 Oct
22 690 11];28(1):456–74. Available from: <https://doi.org/10.1080/26410397.2020.1854153>
23
24
25 691 50. Edwards N, Barker PM. The importance of context in implementation research. *J*
26 692 *Acquir Immune Defic Syndr*. 2014;67:S157–62.
27
28 693 51. Horner R, Blitz C, Ross SW. The Importance Of Contextual Fit When Implementing
29 694 Evidence-Based Interventions [Internet]. *ASPE Issue Brief*. 2014 [cited 2021 Nov 27].
30 695 Available from: http://aspe.hhs.gov/hsp/14/IWW/ib_Contextual.pdf
31
32 696 52. Kok BC De, Uny I, Imamura M, Bell J, Geddes J, Phoya A. From Global Rights to
33 697 Local Relationships : Exploring Disconnects in Respectful Maternity Care in Malawi.
34 698 *Qual Health Res*. 2020;20(3):341–335.

699

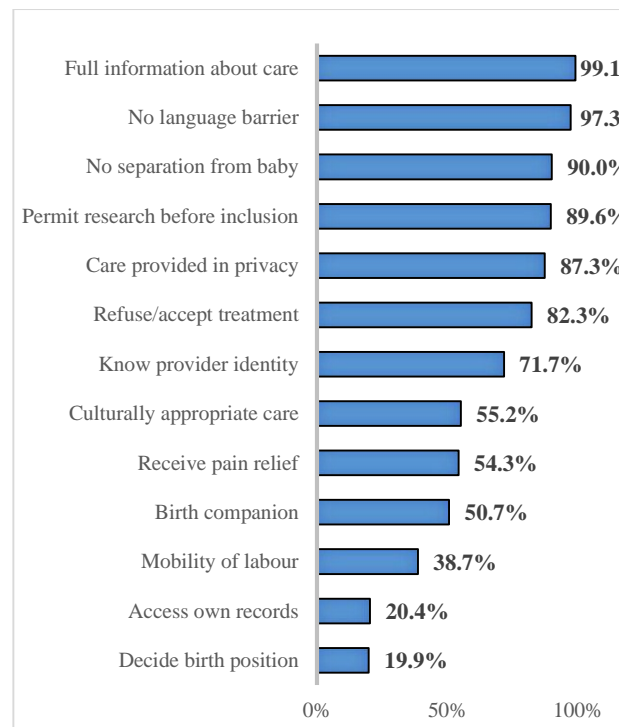
700

701

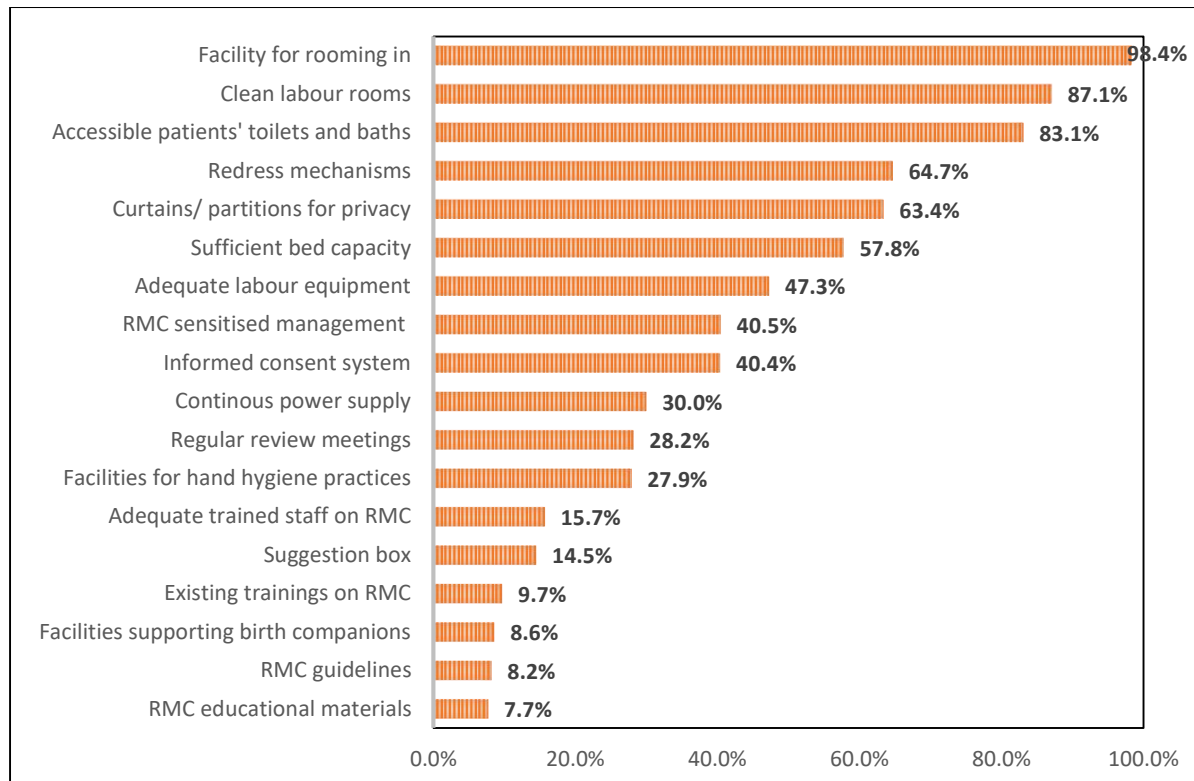
702 **Figure 1: Forms of mistreatment and perceived providers' rights to women during childbirth**703 **Figure 2: Provider perceptions on availability of WHO-recommended resources for RMC**704 **implementation**



Forms of mistreatment noted by providers in their health facilities (n=212)



Provider's perceived rights women should always have during childbirth (n=212)



Additional file 1

What is Respectful Maternity Care?

Respectful Maternity Care (RMC) is a human rights approach to childbirth care practice. It is a new strategy for caring for women in labour which we are yet to commence implementing in this health facility. We are interested in knowing how health facilities offering childbirth services, their managers and individual workers are **READY** to integrate respectful maternity care into their routine childbirth services.

What is Respectful Maternity care?

Simply, it means the following

1. The preferences of the client must be respected, and she must be involved in the decision making regarding her health.
2. She must be allowed a companion during birth as recommended by the WHO
3. She must be free to move about during labour if she so wishes even in the second stage before the urge to deliver and not restricted to one position.
4. If classified as a low risk pregnant woman, she should be allowed oral fluids or food while in labour as evidence has shown no negative outcomes following this.
5. Her privacy must be ensured by providing one private cubicle or space per woman in labour and information about her should not be shared openly.
6. If she prefers to deliver her child squatting, the health care provider must be willing to support her in the decision.
7. Equitable services must be delivered to her regardless of her personal characteristics.
8. When she calls for help during labour, she must not be denied nor neglected.
9. If she is unable to pay her bills, a consensus must be reached with her on how to pay rather than detaining her illegally for the inability to pay.
10. Overall, she must receive the utmost respectful and dignified care, that she deserves as her fundamental human rights.

Rmc Readiness Assessment Of Health Care Providers

Record ID

Longitude

Latitude

Time of start of interview

1. RMC Record ID (For example Adeoyo/HW/001)

2. Which Local Government Area (LGA) is this facility situated

- Ibadan North
- Ibadan North East
- Ibadan North West
- Ibadan South East
- Ibadan South West

3. Level of Public Health Facility

- Primary
- Secondary

4. Date of Birth (Example Day-Month-Year)

Today's date

5. Age

6. Highest Level of education completed

- Secondary education
- School of Health Technology
- Nursing School
- Nurse/Midwifery School
- Medical School
- Master's program / Part 1 Fellowship Exams
- Ph.D. program/ Part 2 Fellowship Exams

7. Professional type

- Specialist Consultant
- Resident doctor
- Medical Officer
- House Officer
- Nurse
- Nurse/Midwife
- CHO
- CHEW
- Health Assistant/ Nurse Auxilliary/ Nurse Aide

In which sub-unit are you working in this health facility or do you work across all the units?

- I work in the antenatal unit only
- I work in the labour room only
- I work in the post-natal unit only
- I work in all the units

- 1 8. Your total income in a month (from all sources) may
2 fall within which of these ranges
3
4
5
6
7
8
9
- < ₦30,000 (83.3USD)
 ₦30, 000 - ₦50,000 (138.9 USD)
 ₦51,000 - ₦70,000 (194.4 USD)
 ₦71, 000 - ₦90,000 (250 USD)
 ₦91,000 - ₦110,000 (305.5 USD)
 ₦110,000- ₦200,000 (555.5 USD)
 ₦200,000 - ₦400,000 (1,111 USD)
 More than ₦400,000 (1,111 USD)

10 9. Specifically, these total Income from (all sources)
11 per month will be about ___ in Naira (write only in
12 figures)
13

14 10. The year you completed pre-service training
15 (graduated from school) for your current profession
16

17 11. Years of professional experience after pre-service
18 training
19

20 12. The year you started working in this facility as
21 one of the following (nurse/midwife//CHO/CHEW)
22
23

24 13. Years of experience working in this facility as
25 one of the following (nurse/midwife/doctor/CHO/CHEW)
26
27

28 14. Have you ever been promoted in your current job? Yes No
29

30 15. In which year were you last promoted in your
31 current job (OR Moved to the next level or higher
32 level for doctors?
33

34 16. No of years ago you were last promoted
35
36

37 17. The current level of the respondent in the Oyo
38 State civil service employment (based on ranks like
39 level 12. Write only the figure, eg. 12)
40
41

42 18. Sex of the health care provider Male Female
43
44

45 **Which of these do you think women should have as a Fundamental Human Right to during**
46 **childbirth and in what frequency? If they should not have a right to it, please, select "Never".**
47 **If they should, then select best of the other options. (A right is something they can demand**
48 **for if not given)**
49

50
51 Always Very frequently Occasionally (Ni Rarely (Ko wopo Never (Ko sele ri)
52 (Nigbogbo igba) (Ni lemolemo) eknankan) rara)
53
54
55
56
57
58
59
60

1	1. Right to know / ask about the	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	professional identity and					
3	qualifications of those involved					
4	with her care					
5						
6	2. Right to communicate with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	caregivers and receive all care in					
8	privacy					
9						
10	3. Right to full and clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	information about what is being					
12	done for her and their benefits,					
13	risks and costs (on the					
14	procedures, drugs, tests and					
15	treatments offered to her)					
16						
17	4. Right to accept or refuse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18	procedures, drugs, tests and					
19	treatments, and to have her					
20	choices honored					
21						
22	5. Right to be informed if her	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23	caregivers wish to enroll her or					
24	her infant in a research study					
25						
26	6. Right to unrestricted access to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27	her file and all available records					
28	about her pregnancy, labor,					
29	birth, postpartum					
30						
31	7. Right to receive maternity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32	care that is appropriate to her					
33	cultural and religious					
34	background.					
35	8. Right to receive information in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36	a language in which she can					
37	communicate (like getting her					
38	an interpreter) where necessary					
39						
40	9. Right to have a family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41	member of her choice present					
42	during all the aspects/ stages of					
43	her labour and childbirth (having					
44	a birth companion)					
45						
46	10. Right to freedom of	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47	movement during labor, not					
48	hindered by tubes, wires or					
49	other apparatus					
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						

For peer review only

- | | | | | | | |
|----|------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 11. Right to virtually | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 | uninterrupted contact with her | | | | | |
| 3 | newborn from the moment of | | | | | |
| 4 | birth, as long as she and her | | | | | |
| 5 | baby are healthy and do not | | | | | |
| 6 | need care that requires | | | | | |
| 7 | separation | | | | | |
| 8 | | | | | | |
| 9 | 12. Right to receive a pain relief | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10 | during labour with information | | | | | |
| 11 | on the type of pain relief, and | | | | | |
| 12 | the risks and benefits | | | | | |
| 13 | | | | | | |
| 14 | 13. Right to deciding the position | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15 | of birth (Squatting) | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |

Has any of the following ever been done to women who have come to deliver in this hospital in the past 1 year to the best of your knowledge (not necessarily by you)? Kindly select the appropriate response

- | | Always | Very frequently | Occasionally | Rarely | Never |
|----|-----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 23 | | | | | |
| 24 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 25 | 1. Physical abuse (slapping or | | | | |
| 26 | hitting pinching, beating or | | | | |
| 27 | attempts made to) | | | | |
| 28 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29 | 2. Verbal abuse (saying | | | | |
| 30 | sentences to pregnant women in | | | | |
| 31 | labour that may sound abusive | | | | |
| 32 | like "was I there when you were | | | | |
| 33 | getting impregnated"?) | | | | |
| 34 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 35 | 3. Not providing information on | | | | |
| 36 | the care to be provided or the | | | | |
| 37 | procedure to be done before | | | | |
| 38 | doing it | | | | |
| 39 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 40 | 4. Not obtaining informed | | | | |
| 41 | consent or a go ahead before | | | | |
| 42 | procedures or examinations are | | | | |
| 43 | done (even if information was | | | | |
| 44 | provided about it) | | | | |
| 45 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 46 | 5. Lack of privacy (not screening | | | | |
| 47 | during examinations) | | | | |
| 48 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 49 | 6. Lack of confidentiality | | | | |
| 50 | (discussing patients' details | | | | |
| 51 | openly or patients' files kept | | | | |
| 52 | indiscriminately) | | | | |
| 53 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 54 | 7. Discrimination based on age, | | | | |
| 55 | economic / financial status, | | | | |
| 56 | ethnicity, religion | | | | |
| 57 | | | | | |
| 58 | | | | | |
| 59 | | | | | |
| 60 | | | | | |

- 1 8. A birth companion of her
- 2 choice NOT allowed to be
- 3 present with the woman all
- 4 through the stages during labour
- 5
- 6 9. Women not allowed to move
- 7 about during labour but must lie
- 8 down in one position
- 9
- 10 10. Women not given an option
- 11 to choose a position of birth (like
- 12 squatting to deliver) or denial of
- 13 their choice
- 14
- 15 11. Unnecessary separation of
- 16 mother and newborn after the
- 17 birth
- 18
- 19 12. Leaving the woman alone or
- 20 unattended or delaying
- 21 attending to the woman after
- 22 being called / sent for
- 23
- 24

25 13. Other types of similar actions done to women
 26 during childbirth in this health facility, please,
 27 specify _____

- 29 How long are women kept on admission at the facility
 30 after an uncomplicated delivery on the average before
 31 discharge home? Less than 6 hours
 32 6-12 hours
 33 More than 12 hours to a maximum of 24 hours
 34 More than 24 hours
 35 Don't know

36 Have you ever heard of Respectful Maternity Care (RMC)
 37 before? Yes No

Readiness Assessment for a Change to a Respectful Maternity Care Practice

Respectful Maternity Care (RMC) is a human rights approach to childbirth care practice. It is a new strategy for caring for women in labour which we are yet to commence implementing in this health facility. We are interested in knowing how health facilities offering childbirth services, their managers and individual workers are READY to integrate respectful maternity care into their routine childbirth services.

What is Respectful Maternity care?
Simply, it means the following

- 1. The preferences of the client must be respected, and she must be involved in the decision making regarding her health.**
- 2. She must be allowed a companion during birth as recommended by the WHO**
- 3. She must be free to move about during labour if she so wishes even in the second stage before the urge to deliver and not restricted to one position.**
- 4. If classified as a low risk pregnant woman, she should be allowed oral fluids or food while in labour as evidence has shown no negative outcomes following this.**
- 5. Her privacy must be ensured by providing one private cubicle or space per woman in labour and information about her should not be shared openly.**

- 6. If she prefers to deliver her child squatting, the health care provider must be willing to support her in the decision.
- 7. Equitable services must be delivered to her regardless of her personal characteristics.
- 8. When she calls for help during labour, she must not be denied nor neglected.
- 9. If she is unable to pay her bills, a consensus must be reached with her on how to pay rather than detaining her illegally for the inability to pay.
- 10. Overall, she must receive the utmost respectful and dignified care, that she deserves as her fundamental human rights.

Respectful Maternity Care can be implemented in this health facility

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Organizational Readiness for a change to RMC Practice

Please select one option for each of these sentences below that best describes how much you think your health facility management and staff are **READY** to integrate respectful maternity care (RMC) practice into the routine childbirth/ delivery care services in this facility (Please, tick one of these 5 options: Strongly Disagree=D, Somewhat Disagree= SWD, Neither Agree nor Disagree =NA/D, Somewhat Agree= SWA, Strongly Agree= A)

	Strongly Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly Agree
6. Health workers in this health facility want to (will not mind to) implement this change to RMC practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Health workers in this health facility are committed to implementing this change to RMC practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Health workers in this health facility are determined to implement this change to RMC practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Health workers in this health facility will do whatever it takes to implement this change to RMC practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Health workers in this health facility are self-motivated to implement this change to RMC practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1	1. Health workers in this health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	facility feel confident that the					
3	facility management can get					
4	people invested in implementing					
5	this change to RMC practice.					
6						
7	5. Health workers in this health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	facility feel confident that the					
9	facility managers can support					
10	people to adjust to this change					
11	to RMC practice.					
12						
13	7. Health workers in this health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	facility feel confident that they					
15	can keep pushing to					
16	implementing this change to					
17	RMC practice.					
18						
19						
20	3. Health workers in this health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21	facility feel confident that they					
22	can keep track of progress in					
23	implementing this change to					
24	RMC practice.					
25						
26	10. Health workers in this health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27	facility feel confident that they					
28	can coordinate tasks so that					
29	implementation goes smoothly					
30	to RMC practice.					
31						
32	8. Health workers in this health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33	facility feel confident that they					
34	can handle the challenges that					
35	might arise in implementing this					
36	change to RMC practice.					
37						
38						
39						
40	12. Health workers in this health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41	facility feel confident that they					
42	can manage the politics of					
43	implementing this change to					
44	RMC practice.					
45						
46						

For peer review only

48 The score for commitment to change _____

51 The MEAN score for Change commitment _____

54 The score for Change Efficacy _____

58 The MEAN Score for Change Efficacy _____

Informational assessment- Regarding a change to a respectful maternity care practice being integrated into your routine childbirth care, please, select the most appropriate option to the sentences below

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. Health workers in this health facility believe we have the equipment we need to implement this change to a RMC practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Health workers in this health facility believe we have the expertise we need to implement this change to RMC practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Health workers in this health facility believe we have the time we need to implement this change to a RMC practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Health workers in this health facility believe we have the skills we need to implement this change to a RMC practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Health workers in this health facility believe we have the resources we need to implement this change to a RMC practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Health workers in this health facility know how much time it will take to implement this change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Health workers in this health facility know what resources we will need to implement this change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Health workers in this health facility know what each of us has to do to implement this change Given	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Change Valence Assessment-

Please select the most appropriate option for each of these statements below regarding a change to integrate respectful maternity care (RMC) practice into the routine childbirth/delivery care services in this facility.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
--	-------------------	-------------------	----------------------------	----------------	----------------

- | | | | | | | |
|----|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 1. Health workers in this health facility feel that a change to a respectful maternity care is compatible with our values | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | 2. Health workers in this health facility feel that we need to implement this change to RMC practice | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | 3. Health workers in this health facility believe this change to RMC practice will benefit our community | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | 4. Health workers in this health facility believe this change to RMC practice will make things better | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | 5. Health workers in this health facility believe this change to RMC practice is a good idea | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | 6. Health workers in this health facility value this change to a RMC practice | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |

Individual Readiness for Change Assessment Tool

The options below are assessing your own personal readiness for your health facility to integrate respectful maternity care practices into your routine childbirth care. Select one option each

- | | Strongly disagree | Disagree | Slightly disagree | Do not disagree nor agree | Slightly Agree | Agree | Strongly Agree |
|----|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| 37 | | | | | | | |
| 38 | | | | | | | |
| 39 | | | | | | | |
| 40 | | | | | | | |
| 41 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 48 | | | | | | | |
| 49 | | | | | | | |
| 50 | | | | | | | |
| 51 | | | | | | | |
| 52 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 53 | | | | | | | |
| 54 | | | | | | | |
| 55 | | | | | | | |
| 56 | | | | | | | |
| 57 | | | | | | | |
| 58 | | | | | | | |
| 59 | | | | | | | |
| 60 | | | | | | | |

- 1 4. I believe that I am more ready
2 to accept a change to RMC
3 practice than my colleagues.
- 4 5. I don't worry about changes in
5 my health facility because I
6 believe that there is always a
7 way to cope with them
- 8
9 6. When changes such as a
10 change to RMC practice occur in
11 my company, I always have the
12 intention to support them.
- 13
14
15

16 **Concerning the availability of the resources needed to integrate a respectful maternity care**
17 **practice into the routine childbirth care in this facility, please select the best option**

- | | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree |
|----|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| 19 | | | | | |
| 20 | | | | | |
| 21 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29 | | | | | |
| 30 | | | | | |
| 31 | | | | | |
| 32 | | | | | |
| 33 | | | | | |
| 34 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 35 | | | | | |
| 36 | | | | | |
| 37 | | | | | |
| 38 | | | | | |
| 39 | | | | | |
| 40 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 41 | | | | | |
| 42 | | | | | |
| 43 | | | | | |
| 44 | | | | | |
| 45 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 46 | | | | | |
| 47 | | | | | |
| 48 | | | | | |
| 49 | | | | | |
| 50 | | | | | |
| 51 | | | | | |
| 52 | | | | | |
| 53 | | | | | |
| 54 | | | | | |
| 55 | | | | | |
| 56 | | | | | |
| 57 | | | | | |
| 58 | | | | | |
| 59 | | | | | |
| 60 | | | | | |

- 1 6. There are health education
- 2 materials on respectful
- 3 maternity care in pictures and
- 4 the languages of the
- 5 communities served in this
- 6 health facility
- 7 7. Rooming-in (Nursing baby by
- 8 the mother's side) is practiced
- 9 in this facility to allow women
- 10 and their babies to remain
- 11 together
- 12
- 13 8. There are clean, appropriately
- 14 illuminated, well ventilated
- 15 labour, and childbirth areas
- 16
- 17 9. There are clean and
- 18 accessible toilets and bathrooms
- 19 for use by women in labour/ post
- 20 delivery
- 21
- 22 10. There is safe drinking water,
- 23 and a hand washing station, with
- 24 soap and water (preferably
- 25 running water) or alcohol-based
- 26 hand rubs
- 27
- 28
- 29 11. Curtains, screens, partitions
- 30 are available and are being used
- 31 to maintain privacy for women
- 32 during ;labour and childbirth
- 33
- 34
- 35 12. There are sufficient bed
- 36 capacity (needed number of
- 37 beds for facility)
- 38
- 39 13. Facilities for companions of
- 40 women in labour, including a
- 41 private space (or partitioned
- 42 with curtain) that can allow for
- 43 the woman and her companion
- 44 are available
- 45
- 46 14. Basic and adequate
- 47 equipment for labor and
- 48 childbirth that is available in
- 49 sufficient quantities at all times
- 50 in the labor and childbirth areas
- 51
- 52
- 53 15. Continuous energy/ power
- 54 supply in the labor, childbirth
- 55 and neonatal areas
- 56
- 57
- 58
- 59
- 60

- 1 16. Staff meetings are held
2 regularly to review our childbirth
3 practices if respectful (RMC
4 practices) or not in this health
5 facility
- 7 17. There is a suggestion box for
8 service users (clients/ patients)
9 and providers to submit
10 complaints to the management
- 13 18. Establishment of
14 accountability mechanisms for
15 redress in the event of
16 mistreatment or violations (eg.
17 disciplinary committee to handle
18 report of mistreatment of
19 women or providers)

These last set of questions help us to self-evaluate ourselves as a person and may elicit the factors that are associated with our readiness for a change to a respectful maternity care

Health care providers' Core Self-Evaluation Personality Traits- Kindly select the most appropriate option to each of the sentences below as it describes you as a person

- | | Strongly disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Strongly agree |
|---|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| 1. I am confident I'll get the success I deserve in life. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Sometimes I feel miserable* | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. When I try, I generally succeed. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Sometimes when I fail I feel worthless* | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. I complete tasks successfully | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. Sometimes, I do not feel I am in control of my work* | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. Overall, I am satisfied with myself | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. I am filled with doubts about my competence* | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. I determine / choose what will happen in my life | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. do not feel in control of my success in my career* | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

- 1 11. I am capable of coping with
- 2 most of my problems
- 3 12. There are times when things
- 4 look pretty bleak and hopeless
- 5 to me*
- 6
- 7

Health care providers' Job satisfaction- Regarding the extent to which you are satisfied with your job, kindly select the most appropriate option for the sentences below

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat Agree	Strongly agree
13 1. My salary is fair compared to 14 other staff in other southwest 15 states with the same level of 16 responsibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18 2. My benefits are fair compared 19 to other staff at my level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21 3. My job description is clear to 22 me, accurate and up to date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24 4. My supervisor and I have 25 agreed on the priorities of my 26 job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27 5. I get clear feedback from my 28 supervisors about how well I am 29 performing on my job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30 6. My annual performance 31 appraisal is based on the 32 priorities in my workplan (my 33 actual performance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35 7. My supervisor seeks my input 36 when faced with a challenge or 37 problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39 8. The organization (the 40 management of this facility) 41 acknowledges and values my 42 work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44 9. The organization (the State 45 Ministry of Health) provide me 46 with the essential coaching and 47 training to do my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49 10. The organization works (as 50 much as possible) to provide me 51 with opportunities for career 52 growth.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

56 Any other important comments or observations _____

57

58

59

60 Time to END of interview _____

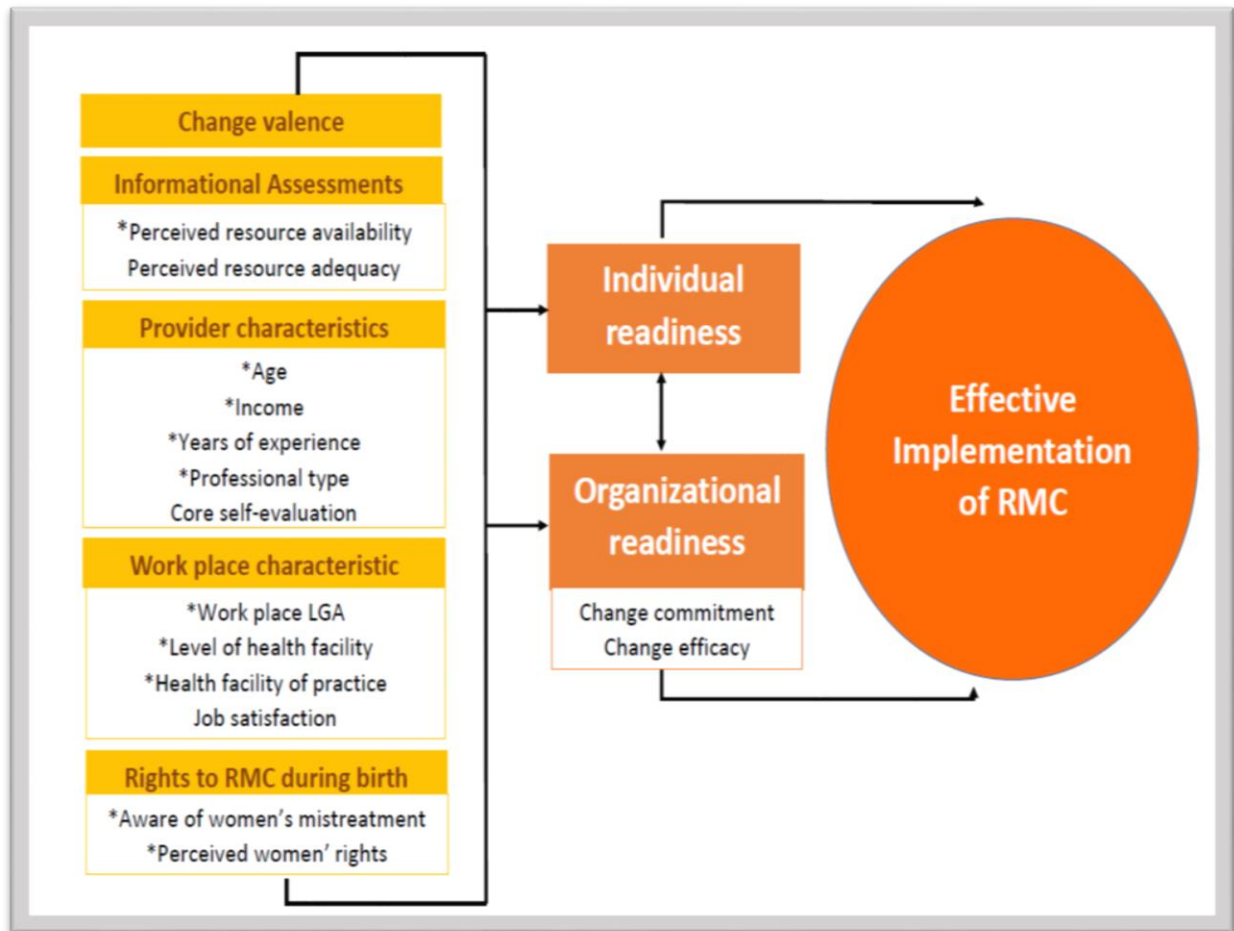
1 Name of Interviewer

- Bukola
- Dr. Esan
- Any other

2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For peer review only

Additional file 3



Study Analytical Frameworks (Note: *proposed as predictor variables)

Additional file 4: Breakdown of tools in the health provider survey instrument

	Name of Tool and Sections	Source	Items	Response type	Alpha coeff.
1	*Organisational Readiness for Implementing change (ORIC)	Shea et al ¹⁹	12	Likert scale 1-5	0.949
2	*Individual readiness for change	Vakola et al ⁸	6	Likert scale 1-7	0.733
3	Socio-demographic characteristics	Adapted from the literature	15		
4	Perception on women's rights during childbirth	Childbirth Connection ²⁰	13	Likert scale 1-5	0.575
5	Provider awareness of mistreatment in their own facility	Maternal & Child Health program ²¹	12	Likert scale 1-5	0.638
6	Change valence	Shea et al ¹⁹	6	Likert scale 1-5	0.902
7	Informational assessments	Phillip ²²	8	Likert scale 1-5	0.648
8	Perception on RMC resource availability	WHO Recommendation for labour ¹	18	Likert scale 1-5	0.669
10	Core self-evaluation tool	Judge et al ¹⁸	12	Likert scale 1-5	0.598
11	Employee job satisfaction tool	Management Sciences for Health ²³	10	Likert scale 1-5	0.603
	Total		112		

*Outcome variables; WHO: World Health Organisation

Additional file 5: Summarised PCA Findings

1. Principal Component Analysis Results for the scale assessing Health Provider's perception of women's rights during childbirth.

Test	Measure	Statistics	
Kaiser-Meyer-Olkin (KMO)	Sampling adequacy	^a 0.620	
Bartlett's	Sphericity	$\chi^2 = 229.126$ df = 78 p < 0.001*	
Total Variance explained			
Component	Eigenvalues	% of variance	Cumulative %
1	2.326	17.89	17.89
2	1.448	11.14	29.04

* Statistically significant ^a Sample is adequate (No of observations -203)

6 Principal component eigenvectors for 4 of 13 components

Variable	Comp1	Comp2	Comp3	Comp4	Comp5
right_Know~r	0.3444	-0.0563	0.0809	0.4687	0.1214
right_priv~y	0.2609	-0.5047	0.0694	0.1062	0.1655
right_info~n	0.1528	-0.1522	0.1208	0.0868	0.6739
right_refu~t	0.1797	0.3353	-0.2941	0.3634	0.0657
right_rese~t	0.2260	0.4095	-0.3549	0.1507	0.2613
right_acce~s	0.2397	-0.2237	-0.3648	-0.3109	0.1185
right_cult~e	0.3100	-0.3255	0.0846	0.2425	-0.4273
right_nola~r	0.0559	0.2120	0.7022	-0.0018	0.2357
right_comp~p	0.3543	0.0971	0.3081	-0.0594	-0.2283
right_mobi~r	0.3228	-0.0195	-0.0627	-0.3274	0.1690
right_noba~n	0.1915	0.4536	0.1623	-0.2516	-0.0634
right_pain~f	0.4288	0.1441	-0.0478	0.0854	-0.3068
right_birt~n	0.3157	-0.0396	-0.0281	-0.5196	0.0064

9 Correlation matrix showing the total, mean scores and pca predicted scores (final rights) for health provider's perception and frequency of women's rights during childbirth.

	Total scores _perceived women's rights	Mean scores _perceived women's rights	No of items agreed to _perceived women's rights	Pca scores _perceived women's rights
Total scores _	1.000			
Mean scores	1.000	1.000		
No of items agreed	0.9157	0.9157	1.000	
Pca scores	0.9919	0.9919	0.9073	1.000

2. Principal Component Analysis Results for the scale assessing Health Provider’s awareness of the frequency of mistreatment of women during childbirth at their own health facilities

Test	Measure	Statistics
Kaiser-Meyer-Olkin (KMO)	Sampling adequacy	^a 0.720
Bartlett’s	Sphericity	$\chi^2 = 357.784$ df = 66 p < 0.001*

Total Variance explained

Component	Eigenvalues	% of variance	Cumulative %
1	2.783	23.19	23.19
2	1.440	12.00	35.19

* Statistically significant ^a Sample is adequate (No of observations -211)

Principal component eigenvectors for 4 of 12 components

Variable	Comp1	Comp2	Comp3	Comp4
physical_abuse	0.1505	-0.1880	0.5230	0.3352
verbal_abuse	0.3260	-0.3530	0.3263	0.1119
lack_of_information	0.4237	-0.0759	-0.2696	0.2439
no_informed_consent	0.2234	0.1038	-0.4436	0.4205
lack_of_privacy	0.3758	0.2156	0.0596	-0.2068
lack_confidentiality	0.4621	0.0288	-0.1338	-0.1383
discrimination	0.4057	-0.1312	-0.1291	-0.0910
no_birth_control	0.1262	0.3171	0.2598	0.2618
no_movement_restrictions	0.0401	0.4763	0.3472	-0.1348
no_choice_of_delivery	0.1061	0.5535	0.1156	0.3253
separation_of_mother_and_baby	0.1021	-0.3402	0.3182	0.0749
abandonment	0.2883	0.0975	0.0988	-0.6087

Correlation matrix showing the total scores, mean scores and pca predicted scores (final mistreatment) for health provider’s awareness of the frequency of women’s mistreatment during childbirth at their facilities

	Total scores _perceived women’s rights	Mean scores _perceived women’s rights	No of items agreed to _perceived women’s rights	Pca scores _perceived women’s rights
Total scores _	1.000			
Mean scores	1.000	1.000		
No of items agreed	-0.7437	-0.7437	1.000	
Pca scores	0.8658	0.8658	-0.4638	1.000

1
2 23 **3. Principal component analysis results for the scale assessing health provider's**
3 24 **perception of resource availability for the implementation of RMC as**
4 25 **recommended by the World Health Organisation**
5 26

Test	Measure	Statistics	
Kaiser-Meyer-Olkin (KMO)	Sampling adequacy	^a 0.640	
Bartlett's	Sphericity	$\chi^2 = 557.535$	
		df = 153	
		p < 0.001*	
Total Variance explained			
Component	Eigenvalues	% of variance	Cumulative %
1	2.968	16.49	16.49
2	2.242	12.46	28.95

20 27 * Statistically significant ^aSample is adequate (No of observations -173)

21 28
22 29 **Principal component eigenvectors for 6 of 18 components**

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
adequate_s~f	0.1937	-0.3240	0.2060	-0.0295	0.1330	-0.1381
mgt_sensit~d	0.1834	0.1923	-0.4623	-0.0580	0.1970	-0.0811
regular_rm~g	0.3397	-0.0619	-0.3633	-0.2583	-0.1123	-0.0819
written_gu~s	0.3728	-0.0247	0.0683	-0.3796	-0.1623	0.0967
informed_c~t	0.0625	0.5407	0.1832	-0.1032	0.0221	0.0626
rnc_educat~s	0.2679	0.0166	0.3492	-0.3203	-0.1146	0.1170
rooming_in	-0.0196	0.2111	-0.0005	0.0803	-0.0010	0.6030
clean_priv~e	0.2048	0.2019	-0.1084	0.3604	-0.2740	0.0965
clean_bath~s	0.2307	0.1783	0.0003	0.3818	-0.3967	0.0724
safe_water~e	0.0780	0.1868	0.1777	0.2380	0.0806	-0.6417
curtains_a~s	0.3270	0.1311	0.1233	0.1952	-0.1454	-0.2312
adequate_b~s	0.2094	-0.1672	0.2842	0.2932	0.4128	0.1370
space_woma~s	0.1107	-0.3020	0.3363	-0.0534	-0.3750	-0.0117
adequate_l~t	0.1908	-0.3234	-0.0153	0.3417	0.2592	0.2372
power_supp~r	0.3325	-0.0968	-0.0659	0.0334	-0.0543	0.1038
rnc_practi~w	0.2486	-0.2531	-0.4220	0.0271	0.0132	-0.0762
suggestion~x	0.2576	0.2220	0.1264	-0.2739	0.4053	-0.0240
redress_co~e	0.2430	0.2129	0.0257	0.1119	0.2920	0.0707

30
31 31 **Correlation matrix showing the total scores, mean scores and principal component**
32 32 **analysis predicted scores (final res) predicted scores for health provider's perception on**
33 33 **the availability of resources needed to implement respectful maternity care as**
34 34 **recommended by the World Health Organisation**

	Total scores _resource availability	Mean scores _ resource availability	No of items agreed to_ _resource availability	Pca scores _ resource availability
Total scores _	1.000			
Mean scores	1.000	1.000		
No of items agreed	0.9206	0.9206	1.000	
Pca scores	0.9576	0.9576	0.8657	1.000

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies***Title: Organisational and individual readiness for change to respectful maternity care practice and associated factors in Ibadan, Nigeria: a cross-sectional study**

	Item No	Recommendation		Page
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	<input checked="" type="checkbox"/>	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	<input checked="" type="checkbox"/>	2
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	<input checked="" type="checkbox"/>	4
Objectives	3	State specific objectives, including any pre-specified hypotheses	<input checked="" type="checkbox"/>	5
Methods				
Study design	4	Present key elements of study design early in the paper	<input checked="" type="checkbox"/>	5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	<input checked="" type="checkbox"/>	5
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	<input checked="" type="checkbox"/>	5-6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	<input checked="" type="checkbox"/>	6-7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	<input checked="" type="checkbox"/>	<i>Additional file 2</i>
Bias	9	Describe any efforts to address potential sources of bias (Adjusted for clustering effect)	<input checked="" type="checkbox"/>	7
Study size	10	Explain how the study size was arrived at	<input checked="" type="checkbox"/>	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	<input checked="" type="checkbox"/>	7-8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	<input checked="" type="checkbox"/>	8
		(b) Describe any methods used to examine subgroups and interactions	<input checked="" type="checkbox"/>	8
		(c) Explain how missing data were addressed	<input type="checkbox"/> No missing data	
		(d) If applicable, describe analytical methods taking account of sampling strategy	<input checked="" type="checkbox"/>	7
		(e) Describe any sensitivity analyses	<input type="checkbox"/> Not applicable	
Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	<input checked="" type="checkbox"/>	8-9

		(b) Give reasons for non-participation at each stage	<input type="checkbox"/> Not applicable	
		(c) Consider use of a flow diagram	<input type="checkbox"/> Not applicable	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	<input checked="" type="checkbox"/>	8-9
		(b) Indicate number of participants with missing data for each variable of interest	<input type="checkbox"/> Not applicable	
Outcome data	15*	Report numbers of outcome events or summary measures	<input checked="" type="checkbox"/>	10
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	<input checked="" type="checkbox"/>	11
		(b) Report category boundaries when continuous variables were categorized	<input checked="" type="checkbox"/>	9 & 11
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		Not applicable
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	<input type="checkbox"/> Not applicable	
Discussion				
Key results	18	Summarise key results with reference to study objectives	<input checked="" type="checkbox"/>	16
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	<input checked="" type="checkbox"/>	16-17
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	<input checked="" type="checkbox"/>	17-21
Generalisability	21	Discuss the generalisability (external validity) of the study results	<input checked="" type="checkbox"/>	17
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	<input checked="" type="checkbox"/>	22

*Give information separately for exposed and unexposed groups.

Checklist for Reporting Of Survey Studies (CROSS)

Section/topic	Item	Item description	Reported on page #
Title and abstract			
Title and abstract	1a	State the word “survey” along with a commonly used term in title or abstract to introduce the study’s design.	1, 2
	1b	Provide an informative summary in the abstract, covering background, objectives, methods, findings/results, interpretation/discussion, and conclusions.	2
Introduction			
Background	2	Provide a background about the rationale of study, what has been previously done, and why this survey is needed.	4, 5
Purpose/aim	3	Identify specific purposes, aims, goals, or objectives of the study.	5
Methods			
Study design	4	Specify the study design in the methods section with a commonly used term (e.g., cross-sectional or longitudinal).	6
	5a	Describe the questionnaire (e.g., number of sections, number of questions, number and names of instruments used).	7-8
Data collection methods	5b	Describe all questionnaire instruments that were used in the survey to measure particular concepts. Report target population, reported validity and reliability information, scoring/classification procedure, and reference links (if any).	7-8
	5c	Provide information on pretesting of the questionnaire, if performed (in the article or in an online supplement). Report the method of pretesting, number of times questionnaire was pre-tested, number and demographics of participants used for pretesting, and the level of similarity of demographics between pre-testing participants and sample population.	7
	5d	Questionnaire if possible, should be fully provided (in the article, or as appendices or as an online supplement).	7
	6a	Describe the study population (i.e., background, locations, eligibility criteria for participant inclusion in survey, exclusion criteria).	7
Sample characteristics	6b	Describe the sampling techniques used (e.g., single stage or multistage sampling, simple random sampling, stratified sampling, cluster sampling, convenience sampling). Specify the locations of sample participants whenever clustered sampling was applied.	6
	6c	Provide information on sample size, along with details of sample size calculation.	6
	6d	Describe how representative the sample is of the study population (or target population if possible), particularly for population-based surveys.	6
Survey	7a	Provide information on modes of questionnaire administration, including the type and number of contacts, the location where the survey was conducted (e.g., outpatient	7-8

1			
2			
3	administration	room or by use of online tools, such as SurveyMonkey).	
4			
5			
6		7b Provide information of survey's time frame, such as periods of recruitment, exposure, and follow-up days.	6
7			
8		Provide information on the entry process:	8
9			
10		→For non-web-based surveys, provide approaches to minimize human error in data	
11		7c entry.	
12			
13		→For web-based surveys, provide approaches to prevent "multiple participation" of	
14		participants.	
15			
16	Study preparation	8 Describe any preparation process before conducting the survey (e.g., interviewers' training process, advertising the survey).	7
17			
18			
19		Provide information on ethical approval for the survey if obtained, including informed	7
20	Ethical considerations	9a consent, institutional review board [IRB] approval, Helsinki declaration, and good	
21		clinical practice [GCP] declaration (as appropriate).	
22			
23		9b Provide information about survey anonymity and confidentiality and describe what	7
24		mechanisms were used to protect unauthorized access.	
25			
26		10a Describe statistical methods and analytical approach. Report the statistical software	8
27		that was used for data analysis.	
28			
29		10b Report any modification of variables used in the analysis, along with reference (if	8
30		available).	
31			
32		Report details about how missing data was handled. Include rate of missing items,	*NA
33		10c missing data mechanism (i.e., missing completely at random [MCAR], missing at	
34		random [MAR] or missing not at random [MNAR]) and methods used to deal with	
35	Statistical	missing data (e.g., multiple imputation).	
36	analysis	10d State how non-response error was addressed.	*NA
37			
38			
39		10e For longitudinal surveys, state how loss to follow-up was addressed.	*NA
40			
41			
42		Indicate whether any methods such as weighting of items or propensity scores have	9
43		10f been used to adjust for non-representativeness of the sample. (Adjustment for	
44		clustering was done using the svy set command)	
45			
46		10g Describe any sensitivity analysis conducted.	*NA

Results

49			
50		11a Report numbers of individuals at each stage of the study. Consider using a flow	*NA
51	Respondent	diagram, if possible.	
52	characteristics	11b Provide reasons for non-participation at each stage, if possible.	*NA
53			
54		11c Report response rate, present the definition of response rate or the formula used to	9
55		calculate response rate.	
56			
57			
58			
59			

		Provide information to define how unique visitors are determined. Report number of unique visitors along with relevant proportions (e.g., view proportion, participation proportion, completion proportion).	*NA
Descriptive results	11d		
	12	Provide characteristics of study participants, as well as information on potential confounders and assessed outcomes.	10
	13a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates along with 95% confidence intervals and p-values.	14 & 16
Main findings	13b	For multivariable analysis, provide information on the model building process, model fit statistics, and model assumptions (as appropriate).	14 & 16
	13c	Provide details about any sensitivity analysis performed. If there are considerable amount of missing data, report sensitivity analyses comparing the results of complete cases with that of the imputed dataset (if possible).	*NA
Discussion			
Limitations	14	Discuss the limitations of the study, considering sources of potential biases and imprecisions, such as non-representativeness of sample, study design, important uncontrolled confounders.	18
Interpretations	15	Give a cautious overall interpretation of results, based on potential biases and imprecisions and suggest areas for future research.	18-22
Generalizability	16	Discuss the external validity of the results.	18
Other sections			
Role of funding source	17	State whether any funding organization has had any roles in the survey's design, implementation, and analysis.	23
Conflict of interest	18	Declare any potential conflict of interest.	23
Acknowledgements	19	Provide names of organizations/persons that are acknowledged along with their contribution to the research.	24
*NA- Not applicable			