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Impact of Covid-19 pandemic on obstetric fistula repair programming and characteristics of Obstetric fistula repair camp attendees at Mashoko Christian Hospital in Zimbabwe

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Abstract:	<p>The advent of Covid-19 pandemic adversely affected many programs worldwide, public health, including programming for obstetric fistula were not spared. Obstetric fistula is an abnormal connection between the vagina and the bladder or the rectum resulting from obstetric causes, mainly prolonged obstructed labour. Zimbabwe has two obstetric fistula repair centers. Because the program uses specialist surgeons from outside the country, the repairs are organized in quarterly camps with a target to repair 90 women per quarter. This study aimed at assessing the impact of restrictions on movement and gathering of people brought about by the Covid-19 pandemic and to characterize participants of the camp which was held in the midst of the Covid-19 pandemic at Mashoko Hospital. Specifically it looked at how Covid-19 pandemic affected programming for obstetric fistula repair and characterized participants of the fistula camp held in November to December 2020 at one of the repair centers. A review of the dataset and surgical log sheets for the camp and national obstetric fistula dataset was conducted. Variables of interest were extracted onto an excel spreadsheet and analyzed for frequencies and proportions. Data were presented in charts, tables and narratives. The study noted that Covid-19 pandemic negatively affected performance of fistula repairs greatly with only 25 women repaired in 2020 as compared to 313 in 2019. Ninety women were called to come for repairs but 52 did not manage to attend due to reasons related to the restriction of the Covid-19 pandemic lockdown. Two thirds of those women suffered from urinary incontinence while the other third had fecal incontinence. The successful repair rate was 92%. This study concluded that the pandemic greatly affected programming of fistula repair in the country and recommended the Ministry of Health and Child Care to institute measures to resume programming as soon as the situation allows.</p>
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3

4 Short title: Effects of Covid-19 pandemic on obstetric fistula programming in Zimbabwe

5

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19

20 **Abstract**

21

22 The advent of Covid-19 pandemic adversely affected many programs worldwide, public health,
23 including programming for obstetric fistula were not spared. Obstetric fistula is an abnormal
24 connection between the vagina and the bladder or the rectum resulting from obstetric causes,
25 mainly prolonged obstructed labour. Zimbabwe has two obstetric fistula repair centers. Because
26 the program uses specialist surgeons from outside the country, the repairs are organized in
27 quarterly camps with a target to repair 90 women per quarter. This study aimed at assessing the
28 impact of restrictions on movement and gathering of people brought about by the Covid-19
29 pandemic and to characterize participants of the camp which was held in the midst of the Covid-
30 19 pandemic at Mashoko Hospital. Specifically it looked at how Covid-19 pandemic affected
31 programming for obstetric fistula repair and characterized participants of the fistula camp held in
32 November to December 2020 at one of the repair centers. A review of the dataset and surgical log
33 sheets for the camp and national obstetric fistula dataset was conducted. Variables of interest were
34 extracted onto an excel spreadsheet and analyzed for frequencies and proportions. Data were
35 presented in charts, tables and narratives. The study noted that Covid-19 pandemic negatively
36 affected performance of fistula repairs greatly with only 25 women repaired in 2020 as compared
37 to 313 in 2019. Ninety women were called to come for repairs but 52 did not manage to attend due
38 to reasons related to the restriction of the Covid-19 pandemic lockdown. Two thirds of those
39 women suffered from urinary incontinence while the other third had fecal incontinence. The
40 successful repair rate was 92%. This study concluded that the pandemic greatly affected
41 programming of fistula repair in the country and recommended the Ministry of Health and Child
42 Care to institute measures to resume programming as soon as the situation allows.

43

44 **Key words:** Obstetric fistula programming, Covid-19 pandemic, characteristics, fistula survivors

45

46 **Introduction**

47

48

49 Obstetric fistula, an abnormal connection between the vagina and either the bladder
50 (vesicovaginal fistula) or the rectum (rectovaginal fistula) presents untold suffering to affected
51 women [1]. The condition results mostly from ischemic trauma caused by prolonged and
52 obstructed labour [2]. It affects all aspects of the woman's life including physical life, spiritual,
53 emotional, social and economic life [3]. Worldwide, obstetric fistula affects between 500,00 and
54 100,000 women every year, with Africa and Asia bearing the highest burden [4].

55

56 In Zimbabwe, the actual burden of obstetric fistula is not known. The country started an obstetric
57 fistula repair program as a public health intervention in August 2015 at one provincial hospital.
58 Before then, obstetric fistula repair was mainly available at private hospital and it was out of
59 reach of many financially compromised women. As efforts to strengthen the fistula program, the
60 Ministry of Health and Child care piloted a community fistula surveillance system in Manicaland
61 province which is being driven by community based workers.

62

63 The program has since been expanded to one more hospital, Mashoko Christian Hospital in
64 Masvingo province and since then more than 700 obstetric fistula survivors have been repaired.
65 Mashoko hospital has up to now conducted five camps. Since the program mostly makes use of
66 visiting surgeons from other countries, fistula repair activities are organized periodically, patients
67 are identified and put on a waiting list.

68 Fistula repair dates are scheduled usually on a quarterly basis and patients are called for repair on
69 the scheduled dates, this is termed a fistula repair camp.

70

71 Zimbabwe registered its first Covid-19 case on the 23rd of March 2020 and the country went into
72 a lockdown with stringent regulations which restricted movement and gatherings. This affected
73 the fistula camp which was organized to start that week where a total of 90 women were
74 expected to be repaired at the two fistula repair sites. The lockdown regulations were relaxed in
75 July to allow limited gatherings and more free movement of people. But Chinhoyi Provincial
76 Hospital was not open for fistula camps mainly because staff and resources had been drained due
77 to the Covid-19 pandemic and part of the hospital was designated as a Covid-19 wing, so there
78 was no space to hold a fistula camp. Mashoko hospital called for a camp which was scheduled
79 for November to December 2020 even though there was limited freedom on movement of people
80 and other infection prevention and control measures.

81

82 To strengthen the fistula program, it is crucial to have information on beneficiaries of the
83 program so that interventions are tailored to the needs of the beneficiaries, such as their ages,
84 when they develop the fistula and whether the program is effective in bringing relief from their
85 suffering.

86

87 The aim of this study was to document effects of the Covid-19 pandemic on the fistula repair
88 program in Zimbabwe and to characterize participants of the obstetric fistula repair camp held in
89 November to December 2020 at Mashoko Christian Hospital. Its objectives were to determine

90 the extent to which Covid-19 pandemic affected fistula repair programming, to determine
91 demographic characteristics of the camp's participants in relation to where they came from, who
92 referred them for the camp, their problems and surgical outcomes.

93

94

95 **Methods**

96

97 **Study design and study setting**

98 A retrospective cross sectional study was conducted using analysis of program data on the
99 obstetric fistula repair camp conducted at Mashoko Christian Hospital and national obstetric
100 fistula database.

101

102 **Study datasets**

103 The dataset contains information and data elements on name of patient, village, district and
104 province of origin, age, period staying with fistula, who referred the patient, whether it is a new
105 or old patient, number of previous fistula repairs, type of injury and type of fistula, surgical
106 diagnosis and surgical procedure performed, surgical outcome and number of days in hospital,
107 among others. These were the data elements needed for this study. Personal identifying data
108 elements such as name, hospital number, contact details and national identity number, were
109 removed from the dataset before analysis to maintain confidentiality. The national fistula
110 program dataset was also analyzed to assess the trends in fistula repairs per quarter in the year
111 compared to the same period the previous year.

112 **Sampling and sample size**

113 Records of all the thirty patients who attended the November-December 2020 fistula repair
114 camp at Mashoko Hospital were purposively included in the study. The national fistula repair
115 dataset was also analyzed for camp attendance for 2019 and 2020.

116

117 **Data collection**

118 An excel spreadsheet with data elements of interest was prepared and data were extracted from
119 the surgical log sheet onto the spreadsheet. Completeness of the data was assured during the
120 process of data extraction by cross checking the log sheet against the patient clinical records.
121 Key informant interviews were also held with the hospital superintendents of the fistula repair
122 hospitals and the National Obstetric Fistula Officer to get information on program
123 implementation in the context of Covid-19.

124

125 **Data analysis and presentation**

126 Since the volume of the data was relatively small, data were analyzed using the excel spreadsheet
127 for frequencies and proportions. Information from the key informant interviews were analyzed
128 manually for content. The data were presented in tables, figures and narratives.

129

130 **Ethical considerations**

131 This article is part of a larger study approved by the Medical Research Council of Zimbabwe
132 under license MRCZ A2525. This study mainly used a records review approach, reviewing the
133 history of how the patients were identified and other demographic data from their medical
134 records excluding their personal identifications. Written informed consent was obtained from all

135 study participants. Key informants gave written informed consent. Confidentiality was
136 maintained throughout the study.

137

138 **Results**

139

140 The Covid-19 pandemic hindered the holding of fistula repair camps in 2020. There was only
141 one camp held with only 25 fistula cases and 5 perineal tears repaired. Fig 1 below illustrates the
142 comparison of fistula cases repaired in 2020 when Covid-19 resulted in restrictions on movement
143 and gathering of people against 2019 when such restrictions were not there.

144

145 **Fig 1: Trends in fistula camp attendance before and during the Covid-19 pandemic**

146

147 A total of 90 women with urine and/or fecal incontinence were called for the repair camp, 82
148 confirmed that they were coming. Of these 52 did not reach the facility because of various
149 reasons related to Covid-19 lockdown restrictions. Fig 2 below shows the numbers of women
150 called for the camp, those who could not come for various reasons and those who actually came.

151

152 **Fig 2: Cascade of the process from being called to attend the camp to actual attendance**

153

154 Reasons given for not reporting for the camp included:

- 155 • Could not get travel authorization documents - 16
- 156 • Afraid of catching Covid-19 – 8
- 157 • Afraid of law enforcement agents - 15
- 158 • Were turned back by law enforcement agents at check-points - 13

159 This left only 30 women who actually attended the camp. This is against the initial plan of
160 repairing 90 women. Fig 3 below shows the distribution of fistula camp attendees by province.

161

162 **Fig 3: Distribution of participants by province of origin**

163

164 Fig 3 shows that half (15 of the 30) of study participants came from Manicaland province. On
165 arrival, all women were screened for Covid-19 infection symptomatically. They had temperature
166 checks and asked questions on whether they had symptoms. They had a rapid test for the
167 infection. Three of the thirty women got a positive rapid test result. They were immediately
168 isolated and specimens for DNA PCR tests were collected and sent for testing. These came out
169 negative and so the women were removed from isolation.

170

171 Measures for infection prevention and control were strictly observed, i.e. frequent handwashing
172 and sanitization, social distancing and wearing of facemasks. The women were admitted in
173 batches of five per day and a ward which used to accommodate 30 patients was able to
174 accommodate only 10.

175

176

177

178

179

180

181

182

183 Other demographic data are presented in Table 1 below.

184

185 **Table 1: Demographic characteristics of participants**

Age groups		
15-19	20-24	25+
6	7	17

Time staying with incontinence		
<1year	1-5 years	>5 years
11	8	11

Type of referral		
Health facility	Community-based workers	Radio
4	22	4

186

187 Table 1 shows that adolescents and young women below the age of 25 contributed a significant
188 proportion (43%) of affected women with 6 participants being below 20 years. The oldest was 73
189 years old and the youngest was 17. The majority (19 women) of the participants developed the
190 incontinence problem in the 5 years preceding this study. The most recent fistula had a duration
191 of 3 months while the longest duration was 39 years. Most (22 women) of the study participants
192 were referred by community based workers.

193

194 Of the 30 women who attended the fistula repair camp, five had fecal incontinence due to 3rd and
195 4th degree perineal tears and 25 had fistula.

196

197

198

199

200

201

202 **Table 2: Type of incontinence and type of injury**

Type of incontinence					
Fecal		Urinary			
10		20			
Type of injury					
3 rd and 4 th degree perineal tears	Vesico vaginal fistula	Circumferential fistula	Urethra-vaginal fistula	Rectovaginal fistula	Vesico-cervical fistula
5	13	6	1	4	1

203
 204 Table 2 above shows that the majority (20 women) of the participants suffered urinary
 205 incontinence. Of the 30 study participants, five had incontinence of stool due to 3rd and 4th
 206 degree perineal tears so 25 were actual fistula cases.

207 Only eight participants had tried to get treatment of their fistula before.

208 **Surgical outcomes among the 25 clients repaired at Mashoko hospital**

209 The outcome of surgery upon discharge was classified into three categories

- 210 1. Dry - fistula was successfully closed and there is no leaking
- 211 2. Incontinence - surgery was successful in closing the fistula hole but patient is discharged
 212 leaking due to stress incontinence
- 213 3. Fistula not closed – fistula was not closed (a dye test is done to distinguish leaking due to
 214 incontinence or unsuccessful surgery).

215 Those with perineal tears were repaired accordingly.

216 Fig 4 below shows the surgical treatment outcomes for fistula cases.

217
 218
 219

220 **Fig 4: Treatment outcomes for fistula cases (n=25)**

221

222 Fig 4 shows that 22 women, which were the majority of the participants went home dry. The
223 fistula were closed and they no longer experienced incontinence, two participants had failed
224 surgery, their fistula were not closed. The treatment success rate was 92%.

225 All participants were discharged from hospital without symptoms of Covid-19. No further
226 diagnostic tests were done for Covid-19.

227

228 **Discussion**

229

230 The main fistula repair center in Zimbabwe, Chinhoyi Provincial Hospital stopped conducting
231 fistula repair surgeries because of the Covid-19 pandemic. This was necessitated by the need to
232 control the pandemic. Infection prevention and control measures which included social
233 distancing, frequent hand sanitization and wearing of face masks were strictly observed. These
234 measures meant cutting on most non-emergency surgeries so as to avoid unnecessary human
235 contact and creating space for anticipated rise in Covid-19 case load. This was a trend noted in
236 other hospitals. A study conducted in October 2020 at a tertiary UK hospital found that the
237 hospital reduced non-emergency operations by 44% due to Covid-19 [5]. A study on the effect of
238 Covid-19 pandemic on health services in Nigeria also found out that the pandemic had thrown
239 health systems into disarray and most services which were deemed not life-saving were put on
240 hold and most efforts directed to the fight of the pandemic [6].

241

242 The attendance rate of women to the repair camp was greatly affected by the Covid-19
243 pandemic. Most of the women (43%) came from Manicaland Province alone. This may be
244 attributed to the increased efforts in active surveillance in the province. The introduction and
245 scaling up of the community fistula surveillance program has increased the awareness of fistula
246 as a treatable condition in Manicaland. Knowledge of obstetric fistula as a medical condition
247 which can be treated and awareness of availability of treatment services has been shown to
248 increase uptake of fistula repair services [7,8]. In a report of a two-week fistula campaign in
249 Nigeria, the highly publicized event saw more than 500 fistula survivors being treated [9].

250 The fact that most fistula cases came from Manicaland may not necessarily mean that the
251 province has the highest fistula burden in the country but awareness raising, active surveillance
252 and publicizing of fistula repair program in the province may help explain this observation.

253
254 Active search for fistula cases was being done by community based workers, fistula survivors
255 and local health workers and this may have helped the community to receive the information and
256 respond better. This phenomenon was also noted in a study documenting the lived experiences of
257 women with fistula in Kenya [10]. The researchers found that women opened up better to locally
258 based health workers and local community workers.

259
260 As noted in other studies, a significant proportion of participants were adolescent and young
261 women aged 24 years and below [11]. In a study conducted in Kaptembwa-Nakuru in Kenya it
262 was noted that only 2.04% of the responds were above 25 years of age [11].

263
264 In their study documenting the experiences of women living with obstetric fistula in 2008,
265 Semere and Nour argued that the body of a girl below the age 20 years is not mature enough to
266 withstand the burden of child bearing, therefore they are at increased risk of developing fistula
267 [12]. Contrary to this finding, a study on fistula survivors' experiences in Ghana had only one for
268 the ten participants below 25 years [8]. These differences could be due to sampling issues.
269 However, the World Health Organization (2019) and the United Nations Population Fund (2015)
270 recognize childbirth during tender ages below age 25 years as high risk for developing obstetric
271 fistula [1,4].

272 The findings of this study revealed that most participants had developed fistula 5 years or less
273 prior to data collection for this study, with the majority of the participants having developed the
274 problem less than 1 year ago. This finding is of concern as it shows that obstetric fistula
275 continues to be a significant complication of pregnancy in Zimbabwe. The country has one
276 district hospital (comprehensive emergency obstetric and neonatal care facility) for every
277 250,000 population (13). This is twice the recommended level for such facilities of 1 per 500,000
278 population (14). In theory, Zimbabwe should have very few or no obstetric fistula cases. This
279 observation has a reference to the strength and effectiveness of the national health system as
280 noted by other studies and the WHO (2014) that the continued occurrence of obstetric fistula is
281 an indication of weak health systems [13–15].

282

283 Although there were other means of participants' referral to the fistula center, the majority (20
284 out of 28) were referred by community based workers in Manicaland through the community
285 surveillance system. The majority of the women identified and referred through this system
286 actually had fistula i.e. 19 of the 20. Only one had stool incontinence due to a 4th degree perineal
287 tear. Although it may be too soon and the numbers inadequate to evaluate the specificity of the
288 community fistula screening tool, these results show promising specificity thresh hold of the
289 tool.

290

291 This study noted that most of the participants had vesico-vaginal fistula and most suffered
292 urinary incontinence, this is in agreement with findings of other studies and documented

293 literature [16]. The high treatment success rate observed by this study, 92%, gives hope to fistula
294 survivors for restoration of good health and dignity after repair.

295 Other studies also noted that when surgical repair of fistula is performed by experienced
296 surgeons, the treatment success rates are very high (18,19)] This observation is believed to
297 motivate fistula survivors to take up e treatment services especially if more survivors who had
298 successful repair advocate for treatment.

299

300 **Conclusions**

301

302 With the above findings, this study concluded that the Covid-19 pandemic negatively affected
303 the fistula repair program in the country as it was considered one of the non-essential services.
304 Women living with obstetric fistula are there in communities as shown by the Manicaland case,
305 they need to be identified, given information on available treatment services and linked to fistula
306 care programs for repair, even during the Covid-19 pandemic.

307 It also concluded that community based workers and fistula survivors can be instrumental in
308 community surveillance of fistula cases in their communities when they are trained on how to
309 use standard surveillance tools.

310 **Recommendations**

311 Basing on the findings of this study, it is recommended to the Ministry of Health and Child Care
312 to scale up and intensify fistula case finding in communities and link them to treatment services
313 so as to end or minimize suffering of women and girls. There is need to increase treatment
314 centers so that patients will not need to travel long distances to access services, this need has
315 been highlighted by the Covid-19 lockdown. It is also recommended to scale up the community
316 obstetric fistula surveillance system making use of community based workers and other
317 personnel to actively search for fistula cases in the community. Use of mobile communications
318 through phone calls or social network platforms to sustain screening and identification of women
319 living with fistula so as to have them repaired as soon as possible after the Covid-19 pandemic or
320 when the situation allows.

321

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323

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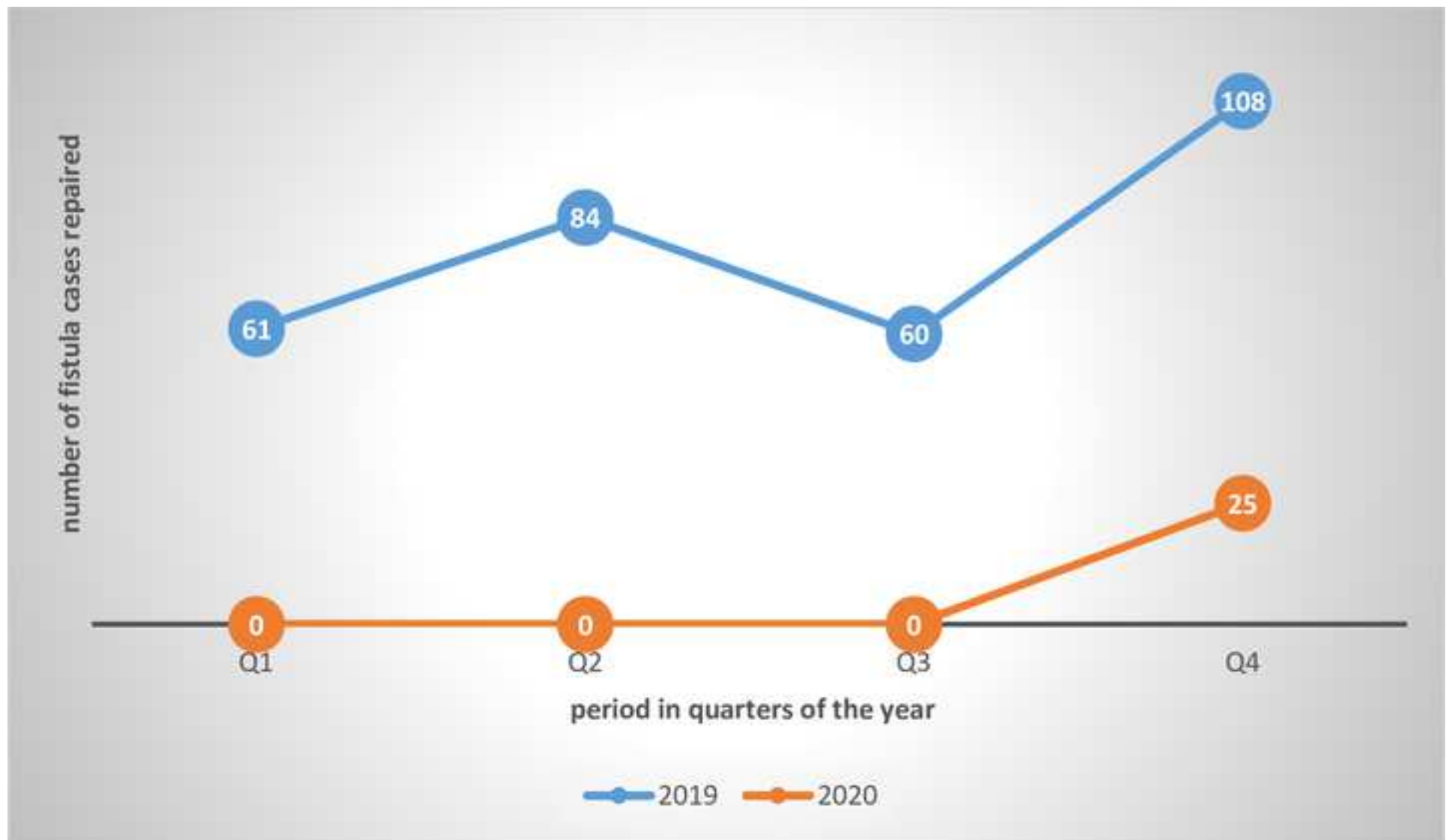
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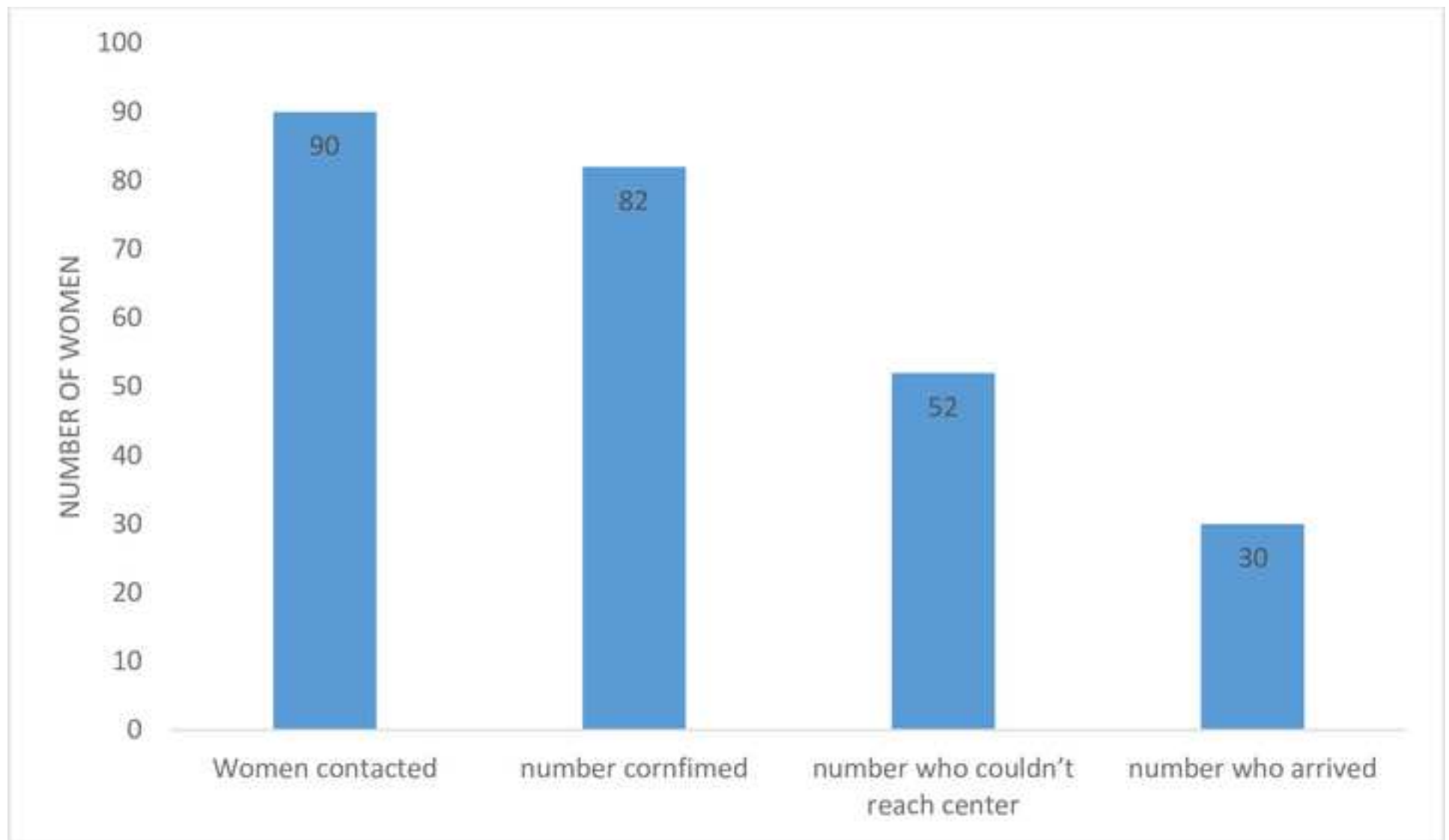
327 **References**

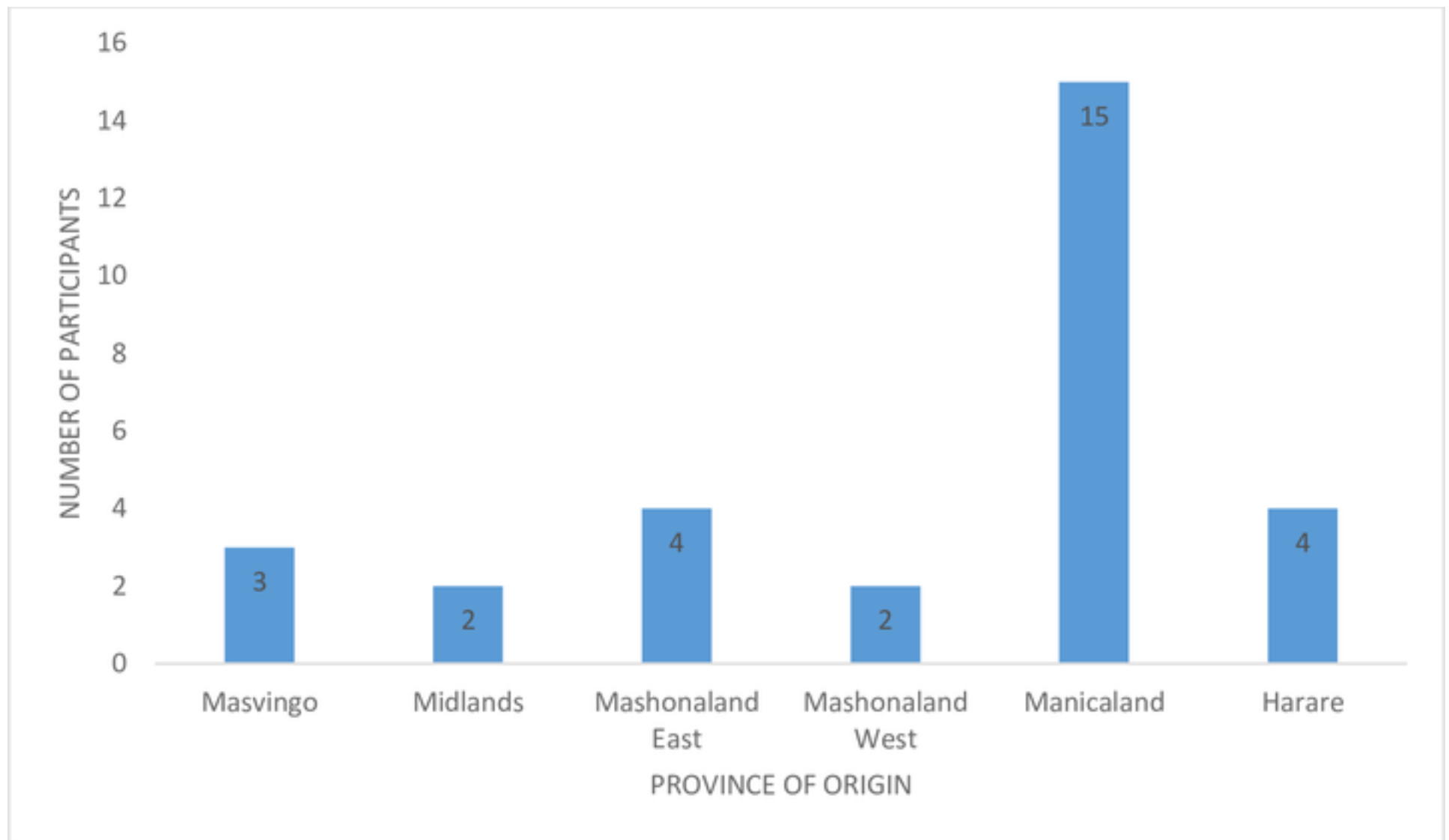
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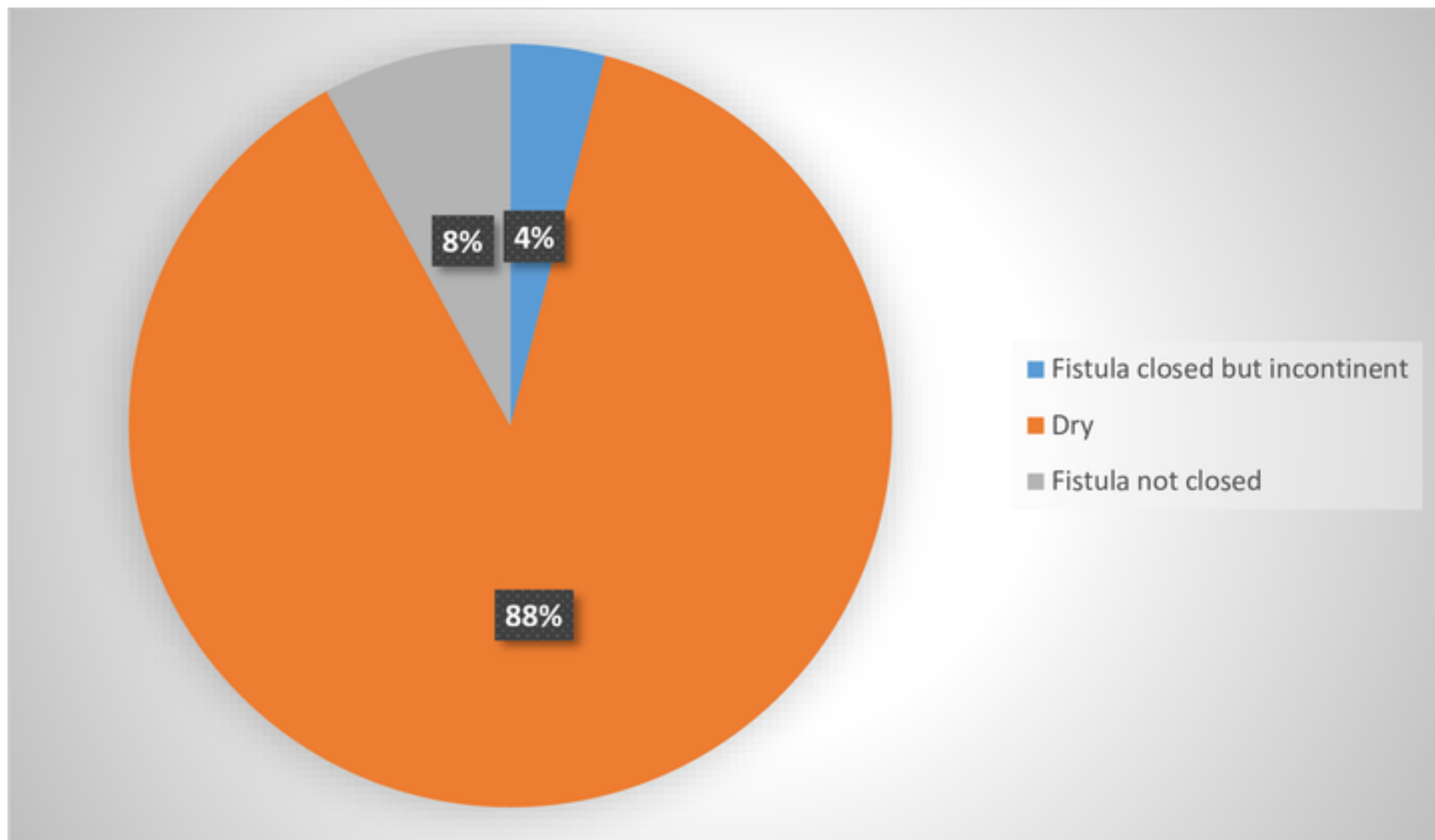
- 329 1. UNFPA. The Maternal Health Thematic Fund 2014 Annual Report: Improving maternal
330 health, surging toward the 2015 deadline [Internet]. 2015 [cited 2019 Jun 1]. Available
331 from: [https://www.unfpa.org/sites/default/files/pub-](https://www.unfpa.org/sites/default/files/pub-pdf/MHTF%20annual%20report%20for%20WEB_0.pdf)
332 [pdf/MHTF%20annual%20report%20for%20WEB_0.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/MHTF%20annual%20report%20for%20WEB_0.pdf)
- 333 2. Kay A, Nishimwe A, Star Hampton B. Giving Voice to the Experiences of Rwandan
334 Women With Urogenital Fistula. *Ann Glob Health*. 2016 Mar 29;81(5):636.
- 335 3. Mselle LT, Kohi TW. Living with constant leaking of urine and odour: thematic analysis of
336 socio-cultural experiences of women affected by obstetric fistula in rural Tanzania. *BMC*
337 *Womens Health*. 2015 Dec;15(1):107.
- 338 4. The World Health Organization W. 10 Facts on Obstetric Fistula [Internet]. Geneva; 2019
339 Jan [cited 2019 May 30]. Available from:
340 https://www.who.int/features/factfiles/obstetric_fistula/en/
- 341 5. Wade S, Nair G, Ayeni HA, Pawa A. A Cohort Study of Emergency Surgery Caseload and
342 Regional Anesthesia Provision at a Tertiary UK Hospital During the Initial COVID-19
343 Pandemic. *Cureus*. 2020 Jun;12(6):e8781.
- 344 6. Ajibo H. Effect of Covid-19 on Nigerian Socio-economic Well-being, Health Sector
345 Pandemic Preparedness and the Role of Nigerian Social Workers in the War Against
346 Covid-19. *Soc Work Public Health*. 2020 Sep 1;35(7):511–22.
- 347 7. Khisa AM, Omoni GM, Nyamongo IK, Spitzer RF. ‘I stayed with my illness’: a grounded
348 theory study of health seeking behaviour and treatment pathways of patients with obstetric
349 fistula in Kenya. *BMC Womens Health*. 2017 Dec;17(1):92.
- 350 8. Abokaiagana A. Experiences of women with Obstetric fistula in the Bawku East District of
351 the Upper East Region. :155.
- 352 9. Ramsey K, Iliyasu Z, Idoko L. Fistula Fortnight: Innovative partnership brings mass
353 treatment and public awareness towards ending obstetric fistula. *Int J Gynecol Obstet*.
354 2007;99(S1):S130–6.
- 355 10. Khisa AM, Nyamongo IK. Still living with fistula: an exploratory study of the experience
356 of women with obstetric fistula following corrective surgery in West Pokot, Kenya. *Reprod*
357 *Health Matters*. 2012 Mar;20(40):59–66.
- 358 11. Kimani ZM, Ogutu O, Antony Kibe. The Prevalence and Impact of Obstetric Fistula on
359 Women of Kaptembwa – Nakuru, Kenya. *Int J Appl Sci Technol*. 2014;4(3):15.
- 360 12. Semere L, Nour NM. Obstetric Fistula: Living With Incontinence and Shame. *Rev Obstet*
361 *Gynecol*. 2008;1(4):193–7.

- 362 13. Ministry of Health and Child Care, Zimbabwe. National Health Strategy for Zimbabwe
363 2016-2020. 2016.
- 364 14. The World Health Organization. Obstetric Fistula guiding principles for clinical management
365 and programme development [Internet]. WHO Press, Geneva; 2017 [cited 2020 May 1].
366 Available from: <https://www.afro.who.int/sites/default/files/2017-06/mps%20Fistula2.pdf>
- 367 15. Ijaiya MA, Aboyeji PA. Obstetric urogenital fistula: the Ilorin experience, Nigeria. *West
368 Afr J Med.* 2004;23(1):7–9.
- 369 16. Kimani ZM, Ogutu O, Kibe A. The prevalence and impact of obstetric fistula on women of
370 Kaptembwa–Nakuru, Kenya. *Int J Appl.* 2014;4(3):273–87.
- 371 17. Okoye UO, Emma-Echiegu N, Tanyi PL. Living with vesico-vaginal fistula: experiences of
372 women awaiting repairs in Ebonyi State, Nigeria. *Tanzan J Health Res.* 2014;16(4):322–8.
- 373 18. Hebbar S, Pandey H, Chawla A. Understanding King’s Health Questionnaire (KHQ) in
374 assessment of female urinary incontinence. *Int J Res Med Sci.* 2015;3(3):531–8.
- 375 19. Wall LL, Karshima JA, Kirschner C, Arrowsmith SD. The obstetric vesicovaginal fistula:
376 characteristics of 899 patients from Jos, Nigeria. *Am J Obstet Gynecol.* 2004;190(4):1011–
377 6.
- 378











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