Health Promotion International Advance Access published October 22, 2016

Health Promotion International, 2016, 1–7
doi: 10.1093/heapro/daw081
Original article

OXFORD

The family planning conundrum in Afghanistan

Hemat Shafiqullah[1,2†], Ayako Morita[3†], Keiko Nakamura[2*], and Kaoruko Seino[2]

[1]Health Promotion, Ministry of Public Health, Afghanistan, [2]Department of Global Health Entrepreneurship, Division of Public Health, Tokyo Medical and Dental University, Tokyo, Japan and [3]Department of Global Health Promotion, Division of Public Health, Tokyo Medical and Dental University, Tokyo, Japan

*Corresponding author. E-mail: nakamura.ith@tmd.ac.jp
†Equal contributing authors

Summary

Introduction: In Afghanistan, despite the high awareness levels of contraceptive methods, the contraceptive prevalence is low and short birth spacing is common. The aim of this study was to understand the perception about family planning and contraceptive utilization among reproductive-aged married women, their husbands, their mothers-in-law, religious leaders and healthcare providers. **Methods:** Focus group discussions and semi-structured interviews were conducted among married women of reproductive age ($n = 482$), their husbands ($n = 133$), their mothers-in-law ($n = 194$), their religious leaders ($n = 16$), and healthcare providers ($n = 36$) in rural and urban areas in five provinces. **Results:** Bigger family size was generally considered as desirable for emotional, economic and social well-being. The majority endorsed contraception. However, some religious scholars and their followers argued that contraception is a sinful act in Islam by interpreting contraception as equivalent to infanticide and suppression of the increase of the Muslim population. Healthcare providers attempted to disseminate health benefits of modern contraception on a family basis. However, fear of various side effects and doubts about their effectiveness due to irregular supply were prevalent in communities. **Discussion:** It is important to increase awareness on the health benefits of appropriate birth spacing at community level. Public health campaigns supported by Islamic religious scholars and a system that ensures appropriate counselling and a steady supply of contraceptives are likely to increase contraceptive utilization.

Key words: maternal health, qualitative methods, education, community participation

INTRODUCTION

Internationally, birth spacing is promoted as a strategy to save the lives of mothers and children. A short interval between pregnancies has been consistently found to increase the risk of uterine rupture, preterm birth, low birth weight, adverse perinatal outcomes, and impaired neurodevelopmental and cognitive outcomes (Conde-Agudelo *et al.*, 2007; Conde-Agudelo *et al.*, 2006; Bener *et al.*, 2012; de Jonge *et al.*, 2014). Children who lose their mothers early in life have been found to be at an increased risk for poor health and mortality (Anderson *et al.*, 2007). Folate depletion, unhealed scar of the

© The Author 2016. Published by Oxford University Press. All rights reserved. For Permissions, please email: journals.permissions@oup.com

Downloaded from http://heapro.oxfordjournals.org/ by guest on October 23, 2016

uterus from a previous caesarean section and infection transmission have been considered as risks, while much evidence has been gained to support the link between a short birth interval and adverse maternal and child health outcomes (Conde-Agudelo *et al.*, 2012). These findings suggest that birth spacing practices are critical for women living in poverty and having poor access to healthcare in ensuring health and well-being of their own and their children.

In Afghanistan, one in every five married women of reproductive age gives birth to a child in less than 18 months from her preceding delivery (Afghan Public Health Institute, 2010). This in turn contributes to the highest maternal and child mortality rates in the world (Carvalho *et al.*, 2012; Kassebaum *et al.*, 2014; Wang *et al.*, 2014). While the percentage of married/in-union women of reproductive age practicing any contraceptive methods in developing countries increased from 51.8% to 62.0% between 1990 and 2010 (Alkema *et al.*, 2013), the practice in Afghanistan is limited to 1.9% for traditional methods and 19.9% for modern methods (Afghan Public Health Institute *et al.*, 2010). The prevalence of any contraceptive use among rural residents is close to half of urban residents (18.4% vs. 36.4%), and the prevalence in North and South areas is less than half of the Central area (14.8%, 16.0%, 33.6%, respectively).

Lack of knowledge does not appear to be the simple explanation for low contraception utilization. About 50% of Afghan women were aware of traditional contraceptive methods and 90% were aware of modern contraceptive methods (Afghan Public Health Institute *et al.*, 2010). A qualitative study among 39 postpartum Afghan women and men in Kabul identified that contraceptive use is not only influenced by knowledge level and educational background, but also by religious teachings and cultural norms and beliefs about family planning and contraceptive methods (Haider *et al.*, 2009). In order to understand the socio-cultural phenomena about family planning and contraceptive use in Afghanistan, it is important to investigate the perceptions of multiple-stakeholders including mothers-in-law, religious scholars and health communities in a nation-wide context (Haider *et al.*, 2009). However, such studies have been limited in Afghanistan.

The aim of this study was to investigate the perceptions of reproductive-aged married women, their husbands, their mothers-in-law, religious scholars and healthcare providers in various places in Afghanistan towards family planning and contraceptive use.

METHODS

Study design

A qualitative approach using focus group discussions and semi-structured interviews was undertaken to explore perceptions of married women of reproductive age, their husbands, mothers-in-law, religious scholars and healthcare providers towards family planning and contraceptive use.

Study sites and participants

The study was conducted between May and June 2013 in urban and rural settings of five major provinces of Afghanistan: Balkh (northern province), Kandahar (southern province), Nangarhar (eastern province), Hirat (western province) and Kabul (central province with the capital). From each target province, 1–4 villages with reasonable security were identified by consultations with key officials and influential persons.

Married women aged between 15 and 49 years who were ‘not currently pregnant’ and ‘had not given birth within the previous 40 days’, and their husbands and mothers-in law were approached by a snowball method starting with village elders. In total, 482 married women from Balkh, Kandahar, Nangarhar, Hirat and Kabul, 194 mothers-in-law and 133 husbands in Nangarhar, Hirat, and Kabul agreed to participate in the study. In addition, we used a peer esteem snowball technique to recruit religious scholars who were famous for their knowledge, a good public speaker and able to encourage people to adopt proper behaviour. Healthcare providers who provided family planning services to many clients and were accessible through consultations with the field the relevant directorates of the Ministry of Public Health and non-government organizations (NGOs) at national and provincial levels were also approached. In total, 16 religious scholars from Nangarhar and Kabul, 36 healthcare providers from Nangarhar, Hirat and Kabul agreed to participate.

Data collection procedures

The data collection process was designed to create a culturally comfortable setting for the participants to talk about sexual issues. In order to avoid the potential for stifling openness, a trained note taker took verbatim notes on every statement the participants made in the focus group interview instead of using an audio recorder. Notes were checked for accuracy by trained FGD facilitators or interviewers immediately after each session.

Perception about family planning and contraceptive use of the married women and the mothers-in-law were

Downloaded from http://heapro.oxfordjournals.org/ by guest on October 23, 2016

explored through FGDs by a trained local female facilitator in a group of 8–12 participants separately. In total, 50 FGD sessions with married women and 19 FGD sessions with mothers-in-law were carried out. Perception about family planning and contraceptive use of the husbands, religious scholars and healthcare providers were explored through 30–45 min semi-structured interviews by a trained local male interviewer. In addition, a short structured interview was conducted individually with the married women, mothers-in-law and husbands to collect information regarding age, education, employment status, region of residence, knowledge about family planning (the married women only) and contraceptive use (by daughter-in-law for the mothers-in-law).

Topics explored among the women, husbands and the mothers-in-law included personal and family attitudes regarding family planning and contraception (*e.g.* What is the ideal family size to you? What do you/your family think about contraceptive use from the Islamic and medical points of view?). Topics explored among the religious scholars included interpretations of the Quran and the hadith (*e.g.* What is the Islamic perspective on family planning and birth spacing?) and preaching to the followers (*e.g.* Have you ever talked about family planning with the followers?). Finally, topics explored among the healthcare providers included provision of modern contraceptives (*e.g.* What type of family-planning methods do you provide?) and communication with clients (*e.g.* What are the common reasons of women rejecting a family-planning method when you advise them to practice?).

Data analysis

We translated the collected data into English, read them repeatedly to consider possible meanings, and identified segments of interview text related to the study objective using the interview guide as our initial framework (*i.e.* religious interpretation, medical interpretation). Two coders independently analyzed the segments, coded and grouped them into a particular theme or category. In this process, they also explored similarities and differences across sub-groups (*i.e.* group, age, sex) and in relation to contraceptive use. Accuracy of interpretation and classification were discussed together with the other researchers, and similarities and differences across sub-groups (*i.e.* group, sex, age) in relation to contraceptive use were also explored and checked by the local interview supervisor and stakeholders (*i.e.* local and international NGOs, Ministry of Public Health). We continued the FGDs and interviews in each study site until no new codes emerged.

The study was conducted with the approval of the Institutional Review Board of the Ministry of Public Health, Afghanistan (356341), and after obtaining written informed consent from all the participants.

RESULTS AND DISCUSSION

The socio-demographic characteristics of the married women, husbands, mothers-in-law are summarized in Table 1. The religious scholar participants included 14 Sunnies and two Shias, and the healthcare provider participants included 14 medical doctors, 17 midwives and five community health workers. Table 2 shows contraceptive knowledge and use by education and residential region. Among the married women, 65.8% had heard about at least one contraceptive method and 42.3% reported current use. The percentage of having heard about family-planning methods was higher among women receiving more than 3 years of formal education ($p < 0.01$) and residing in urban areas ($p < 0.05$). Contraceptive use was higher among women who received more than 3 years of formal education ($p < 0.01$), but no difference was detected by residential urbanization ($p \geq 0.05$).

Perception about desired family size

The majority of the married women, husbands and mothers-in-law perceived a bigger family as desirable. There were four reasons why they supported the idea and practice of having many children: 1) to be happy (*'It is better to have more children because they are the fruits of paradise and give us happiness', a 35-year-old married woman of reproductive age, non-contraceptive user)*; 2) to secure the family's economic well-being (*'The more children you have, the better it is, because they can improve our family's well-being', a 28-year-old husband, non-contraceptive user)*; 3) to have someone to take care of them in their old age (*'Producing more children is better because they can assist their elderly parents', a 23-year-old married woman of reproductive age, contraceptive user)*; and 4) to compensate for possible loss due to disease or war (*'I prefer many children to few children because of the high mortality rates', a 34-year-old husband, contraceptive user)*. A minority who preferred fewer children spoke of protecting the health of mothers and the difficulties in providing adequate care to many children (*'Producing several children is not good. I have eight brothers. All of us are illiterate and facing problems because of it', a 29-year-old*

Downloaded from http://heapro.oxfordjournals.org/ by guest on October 23, 2016

Table 1: Socio-demographic characteristics of married women, husbands, and mothers-in-law

Characteristics	Married Women (N= 482)		Married Men (N= 133)		Mothers-in-law (N= 194)	
	Age (mean ± SD) 27.6±7.0		Age (mean ± SD) 33.4±9.4		Age (mean ± SD) 55.1±7.1	
	n	%	n	%	n	%
Education						
3 years or longer formal education	102	21.2	55	41.4	25	12.9
Less than 3 years of formal education	380	78.8	78	58.6	169	87.1
Employment status						
Self-employed	0	0.0	52	39.1	0	0.0
Paid-employed	69	14.3	79	59.5	22	11.3
Students	18	3.7	2	1.5	0	0.0
Unemployed	395	82.0	0	0.0	172	88.7
Region of residence						
Urban	259	53.7	79	59.4	123	63.4
Rural	223	46.3	54	40.6	71	36.6

Table 2: Knowledge of family planning and use of contraceptives among married women

	All		Education				Region of residence			
			3 years or longer		Less than 3 years		Urban		Rural	
	(N= 482)		(N= 102)		(N= 380)		(N= 259)		(N= 223)	
	n	%	*n*	%	*n*	%	*n*	%	N	%
Heard about family planning methods										
Yes	317	65.8	91	89.2	226	59.5**	184	71.0	133	59.6*
No	162	33.6	9	8.8	149	39.2	70	27.0	88	39.5
Unknown	3	0.6	2	2.0	5	1.3	5	1.9	2	0.9
Currently using contraceptives										
Yes	204	42.3	76	74.5	128	33.7**	116	44.8	89	39.9ns
No	239	49.6	26	25.5	213	56.1	121	46.7	117	52.5
Unknown	39	8.1	0	0.0	39	10.3	22	8.5	17	7.6

Chi-square test: ** $p < 0.01$ Chi-square test; * $p < 0.05$ Chi-square test; ns, non-significant.

husband, contraceptive user; 'Children are not upright, if there are several of them, and just give annoyance and headache to a mother', a 28-year-old married woman of reproductive age, contraceptive user).

Having a large family is traditionally common in Afghanistan. The total fertility ratio in the country has been declining over past decades, but remains as high as 5.1 (Population Division, Department of Economic and Social Affairs, United Nations, 2015). Our findings reveal that desired family size is closely linked to the perceived impact of having more children on families' economic well-being. As close to 40% of the populations still live in poverty (Population Division, Department of Economic and Social Affairs, United Nations, 2015), campaigns addressing the benefits of small families are likely to encourage family planning and contraceptive use in the country.

Medical perceptions about modern contraceptive methods

Most people acknowledged the availability of modern contraceptive methods for parents who produced several children whom they can adequately care for, and wish to stop or delay childbearing. Some participants acknowledged the benefits (*'Practicing the family*

Downloaded from http://heapro.oxfordjournals.org/ by guest on October 23, 2016

planning methods is righteous; lessening the mortality rate of mothers braces the family economy and a progress of life', a 25-year-old married woman, contraceptive user), but many perceived modern contraceptive methods as dangerous, leading to numerous side effects including decreased pleasure during intercourse, nausea, pain, bleeding, weight changes, hypertension, mood changes, mental disorder, shortened lifespan, brain disorders, tremors, hypercholesterolemia, anemia, cancer, facial spots, and life-time infertility ('*My husband says the contraceptives leads to problems so do not use it anymore', a 20-year-old married woman, non-contraceptive user; 'My family disagrees with use of contraception due to a lot of side effects', a 41-year-old husband, non-contraceptive user*). They did not only come from actual experiences, but also by hearing complaints from members of the community ('*Our neighbors have used it and became permanently infertile', a 27-year-old married woman of reproductive age, non-contraceptive user*) and the fear of using contraceptive methods ('*I don't allow my daughter- in- law to use contraception. I am afraid of her developing sterility', a 47-year-old mother-in-law; her daughter-in-law was not a contraceptive user; 'Women refrain from using family-planning methods from a fear of side effects and restrictions from families', female doctor*).

Our findings highlight prevailing concerns and complaints about the side effects of modern contraceptives in a community. In Afghanistan, oral pills, Depo-Provera injections, condoms and intrauterine devices were available free of charge at public health facilities and health posts. Family-planning programs generally consist of education to provide information about available contraceptive methods and where and how to obtain them. Although the interviewed healthcare providers mentioned ways to educate clients such as the use of flip charts, visual models and simple words, none talked about communicating with clients to find their preferred contraceptive methods or to switch methods if suffering from minor side effects. Haider *et al.* (2009) identified medical misconceptions as one of the factors that hinder postpartum Afghan couples to use contraceptives, and the Rural Expansion of Afghanistan's Community-based Healthcare (REACH) project reported that rejection of contraceptive use is more strongly associated with medical misconceptions than cultural and religious perceptions (Huber *et al.*, 2010). Family-planning counselling in the maternity ward has shown marked success in increasing the percentage of postpartum women leaving the hospital with their preferred contraceptive method (Tawfik *et al.*, 2014). Expanding the provision of proper counselling is likely to mitigate concerns about side effects, find preferred methods and increase continuous use of contraceptives.

Religious perceptions about contraception

Desire to produce many children, perceived health benefits in family planning, and concerns for modern contraceptive methods were closely linked with religious interpretations. The participants, both religious scholars and followers, presented mixed religious interpretations with respect to contraception use. A majority of the religious scholars stated that family planning was generally not forbidden in Islam unless it harms the body ('*In line with Islamic teachings, using family-planning methods is allowed and has no prohibition, but abortion is prohibited'; 'Using family planning methods is legal in Jafary jurisprudence, but total removal of the uterus and ovaries is not allowed*'). They endorsed the practice of birth spacing by invoking a statement in the Quran about the child's right to be breastfed up to 2 years ('*In order to fulfill the religious duty of breastfeeding a child, family-planning methods are allowed*') as a way to ensure the healthy growth of children in poverty ('*Birth spacing has economic value because it allows parents to fulfill the needs of their children and bring them up in a good manner*'). However, a few scholars expressed clear opposition to family planning by invoking the Prophet Muhammad's wish to have more Muslims on doomsday ('*Family planning is prohibited based on the saying of the holy Prophet Mohammad Peace Be Upon Him: I will be proud of the number of my followers in the hereafter*'). Similarly, many followers believed that Islam encourages family planning, but some perceived it as a sinful act ('*The local clergyman says that family planning is something evil and may even represent moral turpitude. There should be more Muslims in the world and we should not use contraceptives. My husband also says that family planning is a type of assassination', a 32-year-old married woman of reproductive age, non-contraceptive user*) or considered it an idea that came from the outside ('*We do not use contraceptives because it is not our custom', a 30-year-old husband, non-contraceptive user*).

Some healthcare providers recognized the perception of family planning as a religious taboo that hinders people from using contraceptives ('*One of the reasons that families refuse the use of contraceptives is that they assume it as a sin', female doctor; 'The main reason behind most females not following our advices is, that they say it is forbidden in Islam', community health worker*), and advocated the importance of communication about family-planning benefits and contraceptive use in reference to Islamic law ('*We use verses of the holy Quran and Hadith in our discussions while communicating with people about the family planning. Until now, no*

Downloaded from http://heapro.oxfordjournals.org/ by guest on October 23, 2016

one rejected it totally, but in some villages they discuss the issue with us that the use of family-planning methods is illegal in Islam', community health worker). They perceived it possible to talk on an individual basis, but not to a group. On the other hand, none of the interviewed religious scholars had ever given a talk on family planning to their followers in groups. because some people resist and make retorts with different religious interpretations ('*I have talked individually to people about using contraceptive methods, but not in groups about it from my altar during mosque services*'). Haider *et al.* (2009) highlighted that religious interpretation influences the desired family size and breastfeeding practice among urban Afghan couples. Shaikh *et al.* (2013) argued that the great variation in contraception prevalence among Islamic countries is attributable to the extent of religious scholars' and religious teaching institutions' involvement in family-planning campaigns. Indeed, countries like Iran and Egypt that organized nation-wide family-planning campaigns with religious scholars and religious teaching institutions have shown historical success in achieving contraceptive use prevalence as high as 73.8% and 56.0% in 2000 according to DHS survey (Shaikh *et al.*, 2013). Also, the REACH project that mobilized religious scholars and disseminated information on contraception with the support of Islamic ideology was reported to have had success in increasing contraceptive use in rural communities (Huber *et al.*, 2010). Nationwide expansion of the aforementioned project and continued mobilization of a group of religious scholars and related institutions is likely to promote family planning and contraception.

Supply of family planning services

Lastly, difficulty in receiving family-planning services was raised in the current study as the reason for not practicing contraception. All the healthcare providers had experienced shortages of modern contraceptive stock and disruptions in supply, and one of the married women questioned the effectiveness of contraceptives that were inconsistently supplied. Moreover, nomadic participants pointed out the inexistence of any family-planning services nearby ('*We are nomads. Where we live the contraceptives aren't accessible', a 54-years-old mother-in-law, daughter-in-law is a non-contraceptive user*; '*We are nomads. The clinic is so much far away so we cannot reach family-planning services', a 40-years-old husband, non-contraceptive-user*). These voices suggest that nomads were somehow neglected by family-planning awareness programs and services, and information may not reach the majority of this population. As about 1.5 million people are nomadic in Afghanistan, designing specific interventions for this group will improve overall contraceptive use in the country.

Strength and limitations of the study

Our study is unique in that it captures the perceptions of not only the reproductive age group, but also of the other key players in family planning in various provinces in Afghanistan, which is an ethnically diverse country. A few studies were conducted in Afghanistan to investigate perceptions or other factors that might influence family planning and contraception use, but the subjects were limited to contraceptive users in one community or area (van Egmond *et al.*, 2004; Todd *et al.*, 2008; Haider *et al.*, 2009; Todd *et al.*, 2010). Due to resource limitations, we were not able to conduct interviews with husbands, mothers-in-law, religious leaders and healthcare providers in the eastern and southern provinces. Furthermore, our snowball sampling method and employment of an open discussion style among the female participants might have excluded minority opinions, and the practice of contraception was not always consistent with the stated barriers to contraceptive use. It is possible that a couple's decision on the use or non-use of contraception was influenced by other factors which were not included in the current study. Another limitation of the study is that the interviews were transcribed verbatim rather than recorded, thus limiting the selection of illustrative quotations and the analysis to the researchers who did not conduct interviews. However, the notes were rich in detail and the researcher spoke with every interviewer and supervisor after the data collection to confirm or correct interpretations. In the future, further research is needed to investigate the magnitude of each effect and possible interactions among the identified themes; this will help design effective interventions to promote family planning and contraceptive use in Afghanistan.

CONCLUSION

This study presents some voices of families, religious leaders and healthcare professionals about family planning and utilization of contraceptives by women of reproductive age in Afghanistan. It is important to increase awareness on the health benefits of appropriate birth spacing at community level. Public health campaigns to communicate the benefits of contraception and small families with support from Islamic religious scholars, and a system that ensures appropriate counselling and a steady supply of contraceptives across the nation are likely to increase contraceptive utilization in Afghanistan.

Downloaded from http://heapro.oxfordjournals.org/ by guest on October 23, 2016

FUNDING

This work was supported by the Japan Student Services Organization and Japan Society for the Promotion of Science (Grant number 26305022 and 15KT0128).

ACKNOWLEDGEMENT

The authors would like to thank Dr. Bashir Noormal for his overall support and facilitation to the field research, Dr. Rasheda Furmoli for providing background information on the family planning program in Afghanistan, Dr. Najibullah Safi, Dr. Khalid Sharifi and Dr. Mohammad Nafi Kakar for their comments on the study protocol and questionnaire, and Dr. Farhad Farahmand and Ms. Qudsia Rafizada for facilitating data collection in the field.

REFERENCES

Afghan Public Health Institute, Ministry of Public Health (APHI/MoPH) [Afghanistan], Central Statistics Organization (CSO) [Afghanistan], ICF Macro, Indian Institute of Health Management Research (IIHMR) [India], and World Health Organization Regional Office for the Eastern Mediterranean (WHO/EMRO) [Egypt]. (2011). *Afghanistan Mortality Survey 2010*. Calverton, Maryland, USA: APHI/MoPH, CSO, ICF Macro, IIHMR and WHO/EMRO.

Alkema L., Kantorova V., Menozzi C. and Biddlecom A. (2013) National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *Lancet* **381**, 1642–1652.

Anderson F. W., Morton S. U., Naik S. and Gebrian B. (2007) Maternal mortality and the consequences on infant and child survival in rural Haiti. *Maternal and Child Health Journal* **11**, 395–401.

Bener A., Saleh M., Salameh K., Basha B., Joseph S., Samson N. *et al*. (2012) The impact of the inter pregnancy interval on birth weight and other pregnancy outcomes. *Revista Brasileira De Saúde Materno Infantil* **12**, 233–241.

Carvalho N., Salehi A. S. and Goldie S. (2012) National and sub-national analysis of the health benefits and cost-effectiveness of strategies to reduce maternal mortality in Afghanistan. *Health Policy and Planning* **28**, 1–13.

Conde-Agudelo A., Rosas-Bermudez A. and Kafury-Goeta A. C. (2006) Birth spacing and risk of adverse perinatal outcomes: a meta-analysis. *JAMA* **295**, 1809–1823.

Conde-Agudelo A., Rosas-Bermudez A. and Kafury-Goeta A. C. (2007) Effects of birth spacing on maternal health: a systematic review. *American Journal of Obstetrics and Gynecology* **196**, 297–308.

Conde-Agudelo A., Rosas-Bermudex A., Castano F. and Norton M. H. (2012) Effects of birth spacing on maternal, perinatal, infant, and child health: a systematic review of causal mechanisms. *Studies in Family Planning* **43**, 93–114.

Haider S., Todd C., Ahmadzai M., Rahimi S., Azfar P., Morris J. L. and Miller S. (2009) Childbearing and contraceptive decision making amongst Afghan men and women: a qualitative analysis. *Health Care for Women International* **30**, 935–953.

Huber D., Saeedi N. and Samadi A. K. (2010) Achieving success with family planning in rural Afghanistan. *Bulletin of World Health Organization* **88**, 227–231.

De Jonge H. C. C., Azad K., Steward N., Kuddus A., Shaha S., Beard J. *et al*. (2014) Determinants and consequences of short birth interval in rural Bangladesh: a cross-sectional study. *BMC Pregnancy Childbirth* **14**, 427.

Kassebaum N. J., Bertozzi-Villa A., Coggeshall M. S., Shackelford K. A., Steiner C., Heuton K. R. *et al*. (2014) Global, regional, and national levels and causes of maternal mortality during 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* **384**, 980–1004.

Population Division, Department of Economic and Social Affairs, United Nations. (2015) *World Population Prospects: The 2015 Revision*, United Nations, New York.

Shaikh B. T., Azmat S. K. and Mazhar A. (2013) Family planning and contraception in Islamic countries: a critical review of the literature. *Journal of Pakistan Medical Association* **63**, 67–72.

Tawfik Y., Rahimzai M., Ahmadzai M., Clark P. A. and Kamgang E. (2014) Integrating family planning into postpartum care through modern quality improvement: experience from Afghanistan. *Global Health, Science and Practice* **2**, 226–233.

Todd C. S., Isley M. M., Ahmadzai M., Azfar P., Atiqzai F., Smith J. M. *et al*. (2008) Cross-sectional analysis of factors associated with prior contraceptive use among hospitalized obstetric patients in Kabul, Afghanistan. *Contraception* **78**, 249–256.

Todd C. S., Nasir A., Stanekzai M. R., Scott P. T., Strathdee S. A., Botros B. A. *et al*. (2010) Contraceptive utilization and pregnancy termination among female sex workers in Afghanistan. *Journal of Women's' Health* **19**, 2057–2062.

Wang H., Liddell C. A., Coates M. M., Mooney M. D., Levitz C. E. *et al*. (2014) Global, regional, and national levels and causes of neonatal, infant, and under-5 mortality during 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* **384**, 957–979.

van Egmond K., Naeem A. J., Verstraelen H., Bosmans M., Claeys P. and Temmerman M. (2004) Reproductive health in Afghanistan: results of a knowledge, attitudes and practices survey among Afghan women in Kabul. *Disasters* **28**, 269–282.

Downloaded from http://heapro.oxfordjournals.org/ by guest on October 23, 2016