

# Assessment of the awareness and usages of family planning methods in the Lebanese community

Ghada El Khoury,<sup>1</sup> Pascale Salameh<sup>2</sup>

<sup>1</sup>Pharmacy, Lebanese American University, Byblos, Lebanon

<sup>2</sup>Pharmacy, Lebanese University, Beirut, Lebanon

## Correspondence to

Dr Ghada El Khoury, Pharmacy, Lebanese American University, Byblos, Lebanon; ghada.khoury@lau.edu.lb

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## ABSTRACT

**Background** Worldwide, one in three women has unmet family planning (FP) needs because of difficulties in accessing or using contraceptives. In Lebanon, information from the scientific literature on the national prevalence of contraceptive use appears scarce.

**Objective** In view of this, we measured the current Lebanese national prevalence of FP methods' uptake among women and men of reproductive age, and we assessed barriers for potential unmet need.

**Methods** We conducted a cross-sectional survey on a nationally representative sample of 825 married women (aged 15–49 years) and men of reproductive age (aged 18+ years). We used the validated Demographic & Health Survey (DHS) data collection tool and analysed data with SPSS Version 22.0 with p values <0.05 considered statistically significant.

**Results** We found that the current prevalence of contraceptive use is 55.6%, the unmet need is 11.4%, the total demand for FP is 67% and the percentage of satisfied demand for FP is 83%. Despite favourable knowledge of and access to FP methods as well as positive attitudes towards FP; there is a clear stagnation in the rate of contraception use over the past four decades. The identified major factors hindering the use of FP methods in Lebanon appear to be religion, age and lower educational levels.

**Conclusion** We suggest the implementation of effective interventions at the national level to promote and encourage the uptake of modern FP methods among couples. The latter will further promote maternal and child health, as well as empower women to fulfil their equal function in society.

## INTRODUCTION

According to the World Health Organization (WHO), a specific sustainable target goal is to ensure universal access to sexual and reproductive healthcare

## Key messages

- ▶ The prevalence of contraception use in Lebanon has remained unchanged for the past four decades.
- ▶ The barriers to contraception use, as interpreted in this study, are religion, younger age and lower education levels.
- ▶ It is imperative to further educate the public and integrate family planning interventions into Lebanon's national strategies and programmes.

(SRH) services by 2030.<sup>1</sup> This includes the education and integration of family planning (FP) into national strategies and programmes.<sup>1</sup> FP, as defined by the WHO, allows individuals to anticipate and attain their desired number of children with the spacing and timing of their births. It is achieved through use of contraceptive methods, and the treatment of involuntary infertility.<sup>2</sup> FP directly impacts women's health and well-being as well as the outcome of each of their pregnancies. Some of FP's benefits are reduction of infant mortality, prevention of pregnancy-related health risks, and the empowerment of women and enhancement of their education. Overall, FP is essential for sustainable population growth.<sup>2</sup> Failures of FP are referred to as unmet need and include unmet need for limiting unwanted pregnancies and for spacing pregnancies in women of reproductive age.<sup>3,4</sup> Reports about unmet need for FP are extensively prevalent in the literature. Worldwide, one in three women who preferred to space (16%) or limit (13%) pregnancies was constrained from doing so because of difficulties in using contraceptives.<sup>5,6</sup>

The unsatisfied demand for contraception is particularly common in low- and middle-income countries (LMIC). Data



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from women of reproductive age in Asia, the Caribbean, sub-Saharan Africa and the Middle East show high unmet need for FP.<sup>7–9</sup> Indeed, a significant number of women of reproductive age in LMIC report wanting to avoid or postpone pregnancies without being able to use any FP methods.<sup>8,9</sup>

Causes for unmet FP need in LMIC are related to poor access to health services, lack of necessary knowledge about FP methods, and health concerns about possible side effects.<sup>9</sup> Another salient cause is the social opposition to contraceptive use. In most settings, the most significant social actor that impacts unmet need is the husband or partner. Studies conducted in the Philippines,<sup>10</sup> Guatemala,<sup>11</sup> India,<sup>12</sup> Egypt,<sup>13</sup> Nepal<sup>14</sup> and Pakistan<sup>15</sup> identified the husband's opposition as a major cause for contraception non-use in women. Men's opposition to contraceptive use was explored, and findings revealed that this behaviour was mainly due to the "fear of losing their role as family heads" and the fear of "wives becoming unfaithful".<sup>16</sup> It is also documented that men have very limited knowledge about FP methods, since contraception is considered a woman's domain.<sup>17</sup> Furthermore, it was shown that education of men partners about contraception decreased the FP unmet need.<sup>16</sup>

Lebanon, a middle-income economy Arab country, has a highly fragmented and pluralistic healthcare system. Sources of financing of the Lebanese health system mostly depend on private bodies with heavy reliance on households' out-of-pocket payments with minimal governmental contribution to total health expenditure.<sup>18</sup> The current structure of the health system is a legitimate challenge to health equity and universal health coverage. In common with other primary care services, accessing FP services might be difficult and the projected unmet need might be high.

Identified studies relating to the evaluation of the national reproductive health services in Lebanon appear scarce,<sup>19–22</sup> and the most recent official information from the World Bank on the national prevalence of contraceptive use dates back to 1971 and 2009 and appears to be equivalent to 53% and 55%, respectively.<sup>23</sup>

In view of this, we proposed to measure the current Lebanese national prevalence of FP methods' uptake among women of reproductive age, and assess barriers for potential unmet need.

## METHODS

### Study design and setting

We conducted a cross-sectional survey on a nationally representative sample of married Lebanese women (aged 15–49 years) and men of reproductive age (aged 18+ years) from June 2016 to March 2017. Since Lebanon has no civil code or law regulating the minimum marriageable age, we enrolled women starting at the onset of puberty (15 years) and we set men's marriageable age at 18 years. To respect the

high social and religious values that the country places on virginity among unmarried youth, we excluded non-married sexually active individuals as well as voluntary abortions as modality for FP.

A cluster design sampling was used to attain a nationally representative sample; every village or community constituted a cluster. For weighting, we used the 2004 National Survey of Household Living Conditions<sup>24</sup> as the reference population to enrol participants across governorates as follow: Beirut 10%, Bekaa 11%, Mount Lebanon 39%, North 25% and South 15%.

### Patient and public involvement

Participants were not directly involved in the design of the research. However, the study design and outcome measures were carried out in a way so as to respect and reflect the local communities' values, preferences and experiences. After the conclusion of other related studies on FP and early child marriage, the results of this article and others will be disseminated to participants via various community meetings.

### Data collection process

Before initiation of the data collection, the study protocol, informed consent form and baseline household survey were reviewed and approved by the Lebanese American University Institutional Review Board (IRB00006954 LAUIRB#1).

The calculated total needed sample size was 800, based on a conservative estimated prevalence of contraception use of 50%. Our calculations assumed 80% power and a design effect of 2.0. The cluster effect was later taken into account during our data analysis.

To gather data, we used the standardised Family Planning section of the Demographic & Health Survey (DHS), a nationally-representative household survey developed by the United States Agency for International Development (USAID).<sup>25</sup> The questionnaire had two components: the demographic and socioeconomic characteristics of respondents and their reproductive status, decision-making and contraceptive status.<sup>25</sup> The data collection tool was translated, back-translated and adapted to a Lebanese context.

The data collection started after contacting local authority representatives in each cluster and obtaining a list of dwellers on the basis of which we drew a random sample of 20–25 participants per cluster. Trained interviewers approached participants within households and after obtaining their verbal consent, carried out the survey in a private setting in attempt to minimise response bias. Male and female respondents were independent of one another. Only one of the two partners was interviewed for couples within the same household. In case of refusal, the household was replaced by another one from the list. The reported refusal rate was 26%. We recorded information in such a way that subjects were not identifiable.

## Data analysis

All obtained information was de-identified, coded and processed confidentially. Statistical Package for the Social Sciences (SPSS) software (IBM SPSS Statistics for Windows, Version 22.0; IBM Corp, Armonk, NY, USA) was used for data entry and analysis. Data were analysed by sex, age, marital status, region of residence, religion, education level and socioeconomic status. Each demographic inquiry and assessment question was tabulated and then recorded as the percentage of the total survey. Descriptive statistics were used to assess basic knowledge, as well as perceptions; presented as mean $\pm$ SD for continuous variables and frequency (%) for multinomial/dichotomous variables.  $\chi^2$  tests were used to assess univariate associations with the ORs of FP methods' use among the interviewees. Multivariable logistic regression was used to take into account potential confounders. Sociodemographic factors were the independent predictors and adjusted OR and 95% confidence intervals (CIs) for the probability of using at least one contraceptive method were calculated for each predictor to explain the strength of the association after controlling for other sociodemographic factors. The logistic regression was conducted using a step-wise backward method. All independent variables that did not show a significant association with the dependent variable were removed from the analysis, and the final model only included significant independent variables and modalities. The variables initially introduced in the model were participants' place of residence (ie, governorate), marital status, religion, age, socioeconomic status, wife's education level and husband's education level.

All quantitative data were analysed with the statistical package SPSS (Version 22.0), with *p* values <0.05 considered statistically significant.

## RESULTS

### Sociodemographic characteristics

We interviewed a total of 825 participants of whom 437 were women within the age range 15–49 years and 388 men aged 18+ years. The mean age of the respondents was 31 $\pm$ 10 years. The reported mean age at the time of marriage was 26.5 $\pm$ 4.63 years. The major religions represented in our sample were Islam (47.5%), Christianity (45.3%) and Druze (5.9%). Secondary education was most common (51%) among the participants with a mean monthly household income equivalent to 1 600 000 Lebanese pound (LBP). The male was considered the head of the household by most of the women in the sample (91.6%).

### Reproductive health decision-making

We inquired whether participants discussed FP openly with their spouse; 69% confirmed they did, while 31% responded 'No'. The top two reasons for not discussing FP were being uncomfortable or afraid (60%), or considering such discussions against religion (22%).

The rest of the participants (18%) did not consider FP an essential topic for communication among couples.

When asked about 'Who makes decisions on reproductive health care-seeking?' we found that 25.0% of the decisions were made by husbands alone, 11.0% by wives, 57.4% jointly by husbands and wives, and 6.6% of the decisions being influenced by the couple's parents.

Husbands accompanied their wives to reproductive health services 30.4% of the time, while 43.8% of women sought reproductive health care by themselves, or accompanied by a female family member or friend (25.8%).

### Knowledge of, attitudes towards, and access to FP methods

There was a high level of knowledge about the different modern FP methods, mostly condoms (87.1%) and pills (79.2%). The major source of information was physicians (32%) followed by media/internet (27%), family members and friends (21%), pharmacists (11%) and spouse (9%). The overall attitude towards the use of FP methods was positive, as almost 70% of the respondents approved the use of FP methods. Traditional FP (periodic abstinence and withdrawal) methods were most acceptable to respondents (84.1%), with a lower proportion of respondents (78.4%) regarding modern methods as being acceptable. To evaluate access to FP methods, participants were asked if they knew how/where to go to obtain the different FP methods. The results show an overall high accessibility to contraceptives, with no significant difference across all Lebanese regions. Table 1 summarises respondents' knowledge, access to, and uptake of FP.

### Prevalence and utilisation trend of FP methods

We calculated the contraceptive prevalence rate (CPR) by measuring the percentage of women participants who confirmed that they or their partners were using any contraceptive method (traditional or modern) at the time of the study. We found the current CPR equalled 55.6%. The mean duration of contraceptive use was 4.63 $\pm$ 2.84 years. Almost half of the participants reported using periodic abstinence as a FP method (50.9%), followed by condoms as the most commonly used modern FP method (47.6%). Full utilisation trends of FP methods are shown in table 1.

### Predictors of FP methods uptake

The main predictors of contraceptive use were higher age compared with lower age groups (OR 5.28, 95% CI 3.97 to 10.23, *p*<0.021); religion, as Christians were found to use more FP methods compared with Muslims (OR 5.88, 95% CI 3.03 to 10.81, *p*=0.027); higher socioeconomic status (OR 43.4, 95% CI 6.72 to 73.03, *p*=0.001) as well as higher education levels for wives (OR 3.33, 95% CI 1.72 to 7.87, *p*=0.008) and husbands (OR 14.04, 95% CI 11.51 to 23.58,

## Research

**Table 1** Knowledge of, accessibility to and uptake of family planning methods

FP method	Knowledge of FP method (n (%))	Accessibility to FP method (n (%))	Uptake of FP method (n (%))
Traditional FP methods			
Periodic abstinence	548 (66.5)	–	420 (50.9)
Withdrawal	541 (65.6)	–	285 (34.6)
Modern FP methods			
Condom	718 (87.1)	778 (94.3)	393 (47.6)
Pill	653 (79.2)	766 (92.8)	270 (32.7)
IUD	601 (72.9)	706 (85.6)	321 (26.8)
Implant	401 (48.6)	603 (73.1)	108 (13.1)
Female sterilisation	376 (45.6)	534 (64.7)	74 (9)
Injection	332 (40.2)	465 (56.4)	85 (10.3)
Male sterilisation	303 (36.7)	523 (63.4)	74 (9)
Overall CPR	55.6%		

CPR, contraceptive prevalence rate; FP, family planning; IUD, intrauterine device.

$p=0.02$ ). Table 2 presents the unadjusted and adjusted ORs of current contraceptive use by significant socio-demographic characteristics of participants.

**FP unmet need**

To calculate unmet need, we used the formula depicted by the United Nations Population Division's 2009 Metadata on Unmet Need.<sup>26</sup> As recommended in the literature, our source of data comprised responses to DHS questions pertaining to women's desire for additional children, desired length of birth interval, current contraceptive use status, current fecundity, pregnancy, amenorrhea status for women not currently using contraceptive methods, planning status of the current/

last pregnancy for women currently pregnant or amenorrheic, and the use of a contraceptive method at the time of the current/last pregnancy.<sup>26</sup>

We found the unmet need for FP equivalent to 11.4%, with 6.3% unmet need for limiting and 5.1% unmet need for spacing. The predictors of unmet need, described in table 3, were age, wife's education and religion. Higher age group participants showed a lower likelihood of unmet need (OR 0.93, 95% CI 0.87 to 0.99,  $p=0.001$ ), whereas wives with lower education showed higher likelihood of unmet need (OR 1.87, 95% CI 1.20 to 2.92,  $p=0.003$ ). Participants of Islamic faith reported significantly higher

**Table 2** Unadjusted and adjusted ORs of current contraceptive use by sociodemographic characteristics of participants

Characteristic	Unadjusted OR (95% CI)	P value	Adjusted OR (95% CI)	P value
Christian vs Muslim	4.77 (3.10 to 8.41)	<0.001	5.88 (3.03 to 10.81)	0.027
Wife's education		0.013		<0.001
Intermediate vs low	2.97 (1.23 to 7.16)	0.015	1.02 (0.13 to 8.02)	0.982
High vs low	1.16 (0.48 to 2.77)	0.745	3.33 (1.72 to 7.87)	0.008
Husband's education		0.007		0.044
Intermediate vs low	2.66 (1.21 to 5.83)	0.015	2.63 (0.45 to 15.23)	0.28
High vs low	4.20 (1.66 to 10.64)	0.002	14.04 (11.51 to 23.58)	0.02
Age category (years)*		0.009		0.005
30–39 vs 18–29	1.66 (1.19 to 4.89)	0.380	1.78 (1.32 to 6.08)	0.005
40+ vs 18–29	4.17 (1.98 to 7.54)	0.016	5.28 (3.97 to 10.23)	0.021
Socioeconomic status†		<0.001		<0.001
Q2 vs Q1	0.64 (0.23 to 1.81)	0.399	2.04 (0.47 to 8.87)	0.341
Q3 vs Q1	1.05 (0.41 to 2.69)	0.922	20.63 (2.99 to 14.44)	0.002
Q4 vs Q1	2.27 (0.47 to 10.91)	0.307	29.40 (1.59 to 54.16)	0.023
Q5 vs Q1	6.86 (0.95 to 49.37)	0.056	43.40 (6.72 to 73.03)	0.001

\*Age of participants ranged from 18 to 40+ years since lower age groups did not participate.

†Q1 and Q5 indicate the lowest and highest socioeconomic status, respectively.

FP, family planning.



**Table 3** Predictors of family planning unmet need

Characteristic	Unadjusted OR (95% CI)	P value	Adjusted OR (95% CI)	P value
Age category (years)		0.048		0.005
30–39 vs 18–29	0.42 (0.25 to 5.20)	0.478	0.34 (0.82 to 6.76)	0.561
40+ vs 18–29	0.18 (0.15 to 9.81)	0.385	0.93 (0.87 to 0.99)	0.001
Wife's education		0.587		<0.001
Low vs intermediate	3.18 (0.43 to 14.3)	0.314	1.07 (0.13 to 8.02)	0.07
Low vs high	1.65 (0.56 to 4.12)	0.647	1.87 (1.20 to 2.92)	0.003
Muslim vs Christian	3.29 (0.93 to 11.66)	0.065	36.7 (13.5 to 99.82)	<0.001

FP, family planning.

likelihood of unmet need (OR 36.7, 95% CI 13.5 to 99.82,  $p < 0.001$ ). In summary, the identified sociodemographic characteristics of women who had higher FP unmet needs were younger age, lower education level, and women of Islamic faith.

## DISCUSSION

Our study examined knowledge about and practice of FP methods among a representative sample of Lebanese married individuals. We calculated the CPR, which is equivalent to 55.6%, the unmet need 11.4%, the total demand for FP 67.0% and the percentage of satisfied demand for FP 83.0%.

The results show significant knowledge of, as well as high access to, most modern FP methods. The reported favourable awareness and accessibility to contraceptives does not translate into a similarly high percentage of their use. The CPR in Lebanon is 55.6% compared with 53.3% reported in 1971. If measurement error is taken into account, it is unlikely that the prevalence of contraception has changed. Unmet need in this sample was 11.4%, equivalent to approximately 95 unintended pregnancies in the 10-month period of data collection. If this result were to be generalised to the Lebanese population during the same period, assuming a birth rate of 14.4/1000 population and a total population of 6 237 738 as per the Lebanon Demographics Profile,<sup>24</sup> the estimated number of yearly unplanned births would exceed 90 000. The identified factors for unmet need were women's younger age, lower education level, and women of Islamic faith.

Our findings are consistent with the literature. FP studies conducted in neighbouring Arab countries reveal a similar CPR. For instance, the latest reported rates of contraception use are around 57% in Egypt<sup>13</sup> and 56% in Jordan.<sup>27</sup> The Arab region, though diverse, is still characterised by patriarchal social systems in which marriage and families are given prominence. The identified unmet need, as well as hindering factors for contraceptive use in Lebanon, were found to be similar to other Arab countries. The literature reports that Arab young people's reproductive health needs

are not fully met, with the reasons behind unmet need being mostly linked to cultural and religious sensitivities.<sup>28</sup> Islamic stance was identified as a factor associated with less contraceptive use in a study conducted in Jordan.<sup>27</sup> Possible explanations might be that Muslims are influenced by the Prophet Mohammed's call to 'get married and multiply', and that they believe procreation is one of the most important objectives of marriage.<sup>29</sup> Moreover, children in Islam are referred to as 'wealth' and Muslims believe that every baby comes with his own provision.<sup>29</sup> Unmet need in our study was particularly prevalent among women of lower socioeconomic status and younger age, which are observations recognised in most FP studies conducted in LMIC.<sup>30 31</sup> Our study has some potential limitations to be considered. Despite the fact that we used a high-quality data collection instrument (DHS) and interviewed participants in private, we still need to account for recall bias, as well as response bias due to the effect of social pressure. We had a participation refusal rate of 26%, which might reflect the fact that FP discussions are still considered taboo and people might not feel comfortable openly discussing such matters. We believe that the participants, being more open to discuss FP, are more likely to have a better knowledge and more interest in FP use when compared with the non-respondents, which might reveal a societal higher unmet need for pregnancies.

Despite the aforementioned limitations, the major strength of our study is the fact that it is a national survey that reports on FP perspectives and practices. It measures the prevalence of national FP methods' uptake, and assesses the extent of national unmet need for FP services and its predictors. It also importantly sets the ground for future research related to women's empowerment and gender equity through adequate access to and utilisation of FP services in Lebanon.

Measuring FP and its progress is imperative for driving improved policy and programming. Based on our findings, we propose important interventions targeting both the Lebanese public and private sectors to improve FP. We suggest the implementation of a national surveillance system to continuously monitor

unmet FP needs. We also recommend passing legislation to end child marriage in the country by setting the marital age at 21+ years. Moreover, we propose introducing SRH education into school curricula and mandating premarital FP counselling directed at couples. Not forgetting, finally, the important role that religious leaders and non-governmental organisations play in promoting the concept of FP for achieving maternal and child health.

## CONCLUSION AND PRACTICE IMPLICATIONS

The prevalence of contraception use in Lebanon has remained unchanged for the past four decades, with religion, younger age and lower education levels appearing to be important factors hindering the use of FP methods. It is imperative to further educate the public and integrate FP interventions into Lebanon's national strategies and programmes in an attempt to ensure universal access to SRH services by 2030.

**Contributors** GEK was responsible for the planning, conception and design of the study. PS was responsible for the acquisition of data and its analysis. Both authors worked on the interpretation of data and write-up of the manuscript.

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## REFERENCES

- World Health Organization (WHO). Health in 2015: from MDGs to SDGs. Available: [www.who.int/gho/publications/mdgs-sdgs/en/](http://www.who.int/gho/publications/mdgs-sdgs/en/) [Accessed 10 Feb 2016].
- World Health Organization (WHO). WHO family planning/contraception factsheet N 351. Available: <http://www.who.int/mediacentre/factsheets/fs351/en/> [Accessed 10 Feb 2016].
- Nortman DL. Measuring the unmet need for contraception to space and limit births. *Int Fam Plan Perspect* 1982;8:125–34.
- Westoff CF, Pebley AR. Alternative measures of unmet need for family planning in developing countries. *Int Fam Plan Perspect* 1981;7:126–36.
- Staveteig S. Fear, opposition, ambivalence, and omission: results from a follow-up study on unmet need for family planning in Ghana. *PLoS One* 2017;12:e0182076.
- Shaikh BT. Unmet need for family planning in Pakistan – PDHS 2006–2007: it's time to re-examine déjà vu. *Open Access J Contracept* 2010;1:113–8.
- Sengh G, Hussain R, Bankole A, *et al.* Women with an unmet need for contraception in developing countries and their reasons for not using a method. In: *Occasional report*. New York: Guttmacher Institute, 2007.
- Wulifan JK, Brenner S, Jahn A, *et al.* A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. *BMC Womens Health* 2016;16:2.
- Sedgh G, Hussain R. Reasons for contraceptive nonuse among women having unmet need for contraception in developing countries. *Stud Fam Plann* 2014;45:151–69.
- Ozaki A, Guadalupe A, Saquido AB, *et al.* Family planning as a possible measure to alleviate poverty in the Philippines – beyond sociocultural norms and pervasive opposition. *Int J Health Policy Manag* 2017;6:683–4.
- Richardson E, Allison KR, Gesink D, *et al.* Barriers to accessing and using contraception in highland Guatemala: the development of a family planning self-efficacy scale. *Open Access J Contracept* 2016;7:77–87.
- Prusty RK. Use of contraceptives and unmet need for family planning among tribal women in India and selected hilly states. *J Health Popul Nutr* 2014;32:342–55.
- Awadalla HI. Contraception use among Egyptian women: results from Egypt demographic and health survey in 2005. *J Reprod Infertil* 2012;13:167–73.
- Tamang L, Raynes-Greenow C, McGeechan K, *et al.* Factors associated with contraceptive use among sexually active Nepalese youths in the Kathmandu Valley. *Contracept Reprod Med* 2017;2.
- Habib MA, Raynes-Greenow C, Nausheen S, *et al.* Prevalence and determinants of unintended pregnancies amongst women attending antenatal clinics in Pakistan. *BMC Pregnancy Childbirth* 2017;17:156.
- Mosha I, Ruben R, Kakoko D, *et al.* Family planning decisions, perceptions and gender dynamics among couples in Mwanza, Tanzania: a qualitative study. *BMC Public Health* 2013;13:523.
- Kabagenyi A, Jennings L, Reid A, *et al.* Barriers to male involvement in contraceptive uptake and reproductive health services: a qualitative study of men and women's perceptions in two rural districts in Uganda. *Reprod Health* 2014;11:21.
- Thompson R. *Health care financing and provision in Lebanon: mission report*. MOPH, 2000.
- Tannouri G. *Unmet reproductive health needs for rural women in the Bekaa area*. Beirut: LFPA, 1998.
- El-Kak F. *Review of reproductive health research in Lebanon (unpublished)*. Beirut: UNFPA, 2000.
- Badr L. *Clients' perception of reproductive health services provided in selected clinics in Lebanon*. Beirut: UNFPA, National Reproductive Health Programme, 2001.
- Lebanese Health Society, Lebanon Family Planning Association. *Assessment of women's satisfaction with reproductive health services in health facilities of the Lebanese army. Implemented by Lebanese Health Society (LHS) in collaboration with Lebanon Family Planning Association (LFPA) supported by United Nations Population Fund (UNFPA)*, 2009.
- World Bank. Prevalence of contraception in Lebanon, 2016. Available: <http://data.worldbank.org/indicator/SD.DY.CONU.ZS>
- Reproductive Health Services. Lebanese Ministry of Public Health. Available: <http://www.moph.gov.lb/en/Pages/6/758/reproductive-health-services>
- Demographic & Health Survey (DHS). Available: [https://dhsprogram.com/data/Data-Variables-and-Definitions.cfm#CP\\_JUMP\\_5991](https://dhsprogram.com/data/Data-Variables-and-Definitions.cfm#CP_JUMP_5991)
- United Nations, Department of Economic and Social Affairs, Population Division. World contraceptive use 2009 (POP/DB/CP/Rev2009), 2009. Available: <http://www.un.org/esa/population/publications/WCU2009/Metadata/UMN.html>
- Gharaibeh MK, Oweis A, Shakhathreh FMN, *et al.* Factors associated with contraceptive use among Jordanian Muslim

- women: implications for health and social policy. *J Int Womens Stud* 2011;12:168–84.
- 28 DeJong J, El-Khoury G. Reproductive health of Arab young people. *BMJ* 2006;333:849–51.
  - 29 Kridli SA-O, Libbus K. Contraception in Jordan: a cultural and religious perspective. *Int Nurs Rev* 2001;48:144–51.
  - 30 Metcalfe A, Talavlikar R, du Prey B, *et al*. Exploring the relationship between socioeconomic factors, method of contraception and unintended pregnancy. *Reprod Health* 2016;13:28.
  - 31 Al-Almaie SM. The pattern and factors associated with child spacing in eastern Saudi Arabia. *J R Soc Promot Health* 2003;123:217–21.