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Manuscript Details

Manuscript number	MEFS_2017_149_R1
Title	Educational level and family planning among women of developing countries: a prospective explorative knowledge, attitude and practice study
Short title	Education, family planning and Pakistani women
Article type	Original Article

Abstract

The choice & decision-making powers around contraception and family planning in relation to educational levels in women from a developing country, was explored in this explorative knowledge, attitude and practice study. A survey collated data from 324 married women of reproductive age. A mixture of urban & rural, and lower & higher educated women participated. Sixty percent indicated that they had not been given a choice regarding family size; unwanted pregnancies are a common occurrence. Although a woman's level of education has a positive impact - as this group feels more empowered to make decisions - the majority of women still have very limited power to make decisions about the number of children they wish to have. Larger scale research is required to determine if this situation is mirrored nationwide, and whether regional and national level interventions aimed at both sexes are indicated to improve this situation.

Keywords	contraception, women's choice, family planning, developing countries, education
Manuscript region of origin	Asia Pacific
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Submission Files Included in this PDF

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Revision1 - cover letter 16Jan2018.docx [Response to Reviewers]

family planning Pakistan _18Jan2018_-_title_page.docx [Title Page (with Author Details)]

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Conflict of interest.docx [Conflict of Interest]

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To:

Professor Moiety
Associate Editor
Middle East Fertility Society Journal

Dear Prof Moiety

Many thanks for considering our manuscript and for providing us with feedback from the peer-reviewer; below we have reproduced his/her notes and given our response.

The authors did some efforts collecting and analyzing the data, the following should be, however, addressed...

First phrase in introduction contains "basic human right" which was not explained in this context neither cited at the end of the paragraph.

-- -Now rewritten with reference to United Nations source.

- *At the end of the paragraph " A male-dominated society" is a dogmatic statement, and needs some more sources / references to prove.*

--- We have added references which refer to this phrase, have put in the caveat that society may be male-dominated at present and in the past, and we have added another cited sentence which outlines that males often have the final say in family planning decisions.

- *Methods: Duration of the study was in 2013, would the authors, explain the delay attempting to publish their data*

---The corresponding author moved from Pakistan to the UK shortly after conducting this study. The upheaval of the move and need to get settled in a new role meant that there was a delay in writing the manuscript. Furthermore, we did submit this manuscript to another journal. They took a relatively long time of nearly six months to feed back to us (the manuscript was rejected on that occasion).

- *The validity was "considered & appraised within the team" is a vague statement that did not help defending the accuracy of the data analysis*

--- This statement has been removed. We have however, added in the discussion that the use of a non-validated survey is a potential weakness of the study.

- *Which version of SPSS was used in analysis*

We used SPSS version 18, and this is now recorded in the Methods section.

- *Did the author ask about other contraceptive methods than the 3 mentioned? why?*

--- In 2012-13, in that region of Pakistan these were the most commonly administered and distributed contraceptives. However, we have added a sentence to highlight that IUCD use is on the increase.

- *In discussion, the issue of a small sample size was raised, how could this match the sample size calculation done to promote the power of the study? as well as the extra number of patients recruited to cover defects?*

--- This has been deleted, since the study is sufficiently powered. As mentioned, the use of a non-validated survey has been highlighted instead. Some late replies and entries send the final number of participants beyond the anticipated sample size.

- *The authors did not know declare the reasons why male partners were not surveyed?*

--- We already touched on the reasons for not surveying males in this study, but we have further added to this. We also recognise in the discussion that this would be indicated in follow-up studies, and we have referred to one paper which looked at concordance n opinion on family planning between husbands and wives.

- *Table 1 's data would better be (or in addition) presented in a graph*

--- Because there are three different outcomes presented, each with their own selection of answers, this table is hard to present in one single Graph. See also next point re. Table 2.

- *Table 2 data needs to be realigned*

--- Table 2 is fairly lengthy; to make the paper easier to read we have presented some of the data from this Table in Figure 1.

We hope these changes suffice and look forward to your response in due course.

Sincerely yours

Dr Fouzia Memon and Dr Leon Jonker

Title: Educational level and family planning among Pakistani women: a prospective explorative knowledge, attitude and practice study.

Type of manuscript: original article

Word count: 2812 (incl abstract, tables and references)

Authors: , F Memon¹, L Jonker²

¹#Dr Fouzia Memon, consultant Obstetrician; North Cumbria University Hospitals NHS Trust, Obstetrics & Gynaecology Department, Carlisle, CA2 7HY, UK, tel 01228 814212, e-mail Fouzia.memon@ncuh.nhs.uk

²Dr Leon Jonker; Science & Innovation Manager, Cumbria Partnership NHS Foundation Trust, Research & Development Department, Carlisle, CA1 3SX, UK, Tel 0176824 5975, e-mail leon.jonker@cumbria.nhs.uk [ORCID number 0000-0001-5867-4663]

Corresponding author

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Introduction

Worldwide organisations such as the United Nations recognise that aAutonomy in decision-making regarding reproductive health issues is considered as a ~~basic~~ human right.¹ It has been recognized as key to women's health, having positive impact on her family, community and country. In developing countries, women's autonomy is affected by socio-demographic, religious and cultural influences. The most prevalent influences being lack of education and living in a (traditionally or presently) male-dominated society^{1,2,3,4,5}. The latter is illustrated by results from a study published in 2001, where Pakistani women indicated that the main reasons for not using contraceptives was the concern that their use would conflict their husband's wishes and that it would go against social and cultural custom⁶³. Furthermore, there is evidence to support that often males will have the final say in family planning, despite more engagement with health authorities and support organisations by females.⁴

In Pakistan, family planning and related support was introduced on a national scale in 1994 to improve maternal and child health. In parallel, Lady Health Workers have been introduced to visit women who may not be able to visit central health centers for cultural or religious reasons⁷⁴. Despite the longstanding presence of these national initiatives, in the past their effectiveness has come under scrutiny⁸⁵. There is an unmet need to describe and evaluate the current situation around the role that Pakistani women have in family planning and contraception decisions, and to explore if level of education influences said role.

Methods

This concerns an explorative knowledge, attitude and practice (KAP) study focusing on a sample of women from a big city in a developing country. Approval was gained from the Institutional Review Board of the hosting organization. The research was conducted in accordance with the Declaration of Helsinki. From January to December 2013, post-graduate trainees, patients and visitors of an obstetrics & gynecology department were invited to take part in in-person interviews and a questionnaire survey. Staff were invited via internal postal invites and patients and visitors were approached in person when attending clinic or accompanying/visiting relatives. Informed consent was obtained from participants prior to taking part in the study and only women over the age of 18 years were invited to take part. The interview questions and questionnaire were developed for this study and therefore non-validated; ~~however, content validity was considered and appraised within the research team before the study commenced.~~ The survey was developed in response to patients' concerns regarding family planning and their role in the process. Common issues raised by patients were incorporated into the survey. Due to the levels of illiteracy amongst patients, the results will be relayed to future patients who visit our centre for family planning related reasons.

-The required minimal sample size (n=269) was determined on the basis of a confidence level of 90% and margin of error of 5%, based on Pakistan's population of 182,000,000. More patients were recruited to anticipate some questions not being answered by participants. Data was collated using Excel and analyzed with SPSS v18, and analysis of variance testing was applied to determine any statistically significant differences between sub-groups. The primary outcome measures were overall application of family planning among Pakistani women in Hyderabad; the secondary outcome measured family planning activity among the same cohort but stratified the participants by level of education achieved.

Results

Of all 324 women enrolled in this study, 61% were living in urban areas and 66% were educated, and most of them (71%) were housewives. Table 1 further outlines the sociodemographic distribution for the respondents; main residency status, literacy level and professional status were assessed amongst women participating in this study.

[Table 1 near here]

Table 2 and Figure 1 summarize data on family planning and the role of Pakistani women in this process. One hundred and seventy nine (55%) participants had never previously thought about the desired number of children and 60% were not given the choice to decide about family size. The husband's wish (14%) and unplanned pregnancies (44%) were the main reasons for having additional children. More than half of the pregnancies (52%) were unwanted.

[Table 2 and Figure 1 near here]

All women had knowledge of the use of condoms, oral contraceptives and injectable medicines. The most popular method was injectable, followed by oral contraceptives and condoms. This largely mirrors national data for Pakistan regarding contraceptive use, although in recent years the use of intrauterine devices has become more popular.⁹ When asked about the reasons for not favoring sterilization the answers were: fear of side effects (n = 48/324, 27%); refusal by their husbands (n=52, 29%); and thought it went against socio-cultural values (n=79, 44%). Average age at the time of marriage was 21 years for the women in the cohort, in contrast to a mean 27 years for their husbands. Over half of all the participating women (n = 192 women (60%) had freedom to choose their life partners; however, 180 women of the 324 women surveyed (57%) were not given the choice to decide at what age they wanted to marry.

The study specifically focuses on the impact of education on reproductive choice and decision-making by women in family planning matters. Table 3 shows that non-educated women marry at a younger age than their educated counterparts. Eighty three percent of further educated women were able to decide on the number of children they wanted. Among the 145 women who had previously thought about family size, more than half (56%) had a higher level of education. The level of education in women who had knowledge of contraception (194) was primary 30% and secondary or higher 51%, 19% had no formal school education. The 19%, 26% and 55% of women who used contraception were not

educated, primary education and secondary and above respectively. Currently, some form of family planning method is used by non-educated (26%), primary education (28%) and secondary and above (46%). Only primary level education did not give much power to women to visit a health care facility, 42% of women with education secondary or above could visit a health care facility if needed. Similar trend was seen when asked about sterilisation. In women who favour permanent contraception, the majority of them had education secondary or above (44%). A higher level of female education resulted in increased understanding between the couples and in 54% of women with a higher education level the number of children was a shared decision. However, there were a significant number of unplanned pregnancies irrespective of educational status. Neither was the interval between pregnancies dependent on level of education.

[Table 3 near here]

Discussion

Our study results show that the majority of women in our sample, even when educated, have very little power to decide about the number of children they would like. It appears that women in Hyderabad would benefit from more information about reproduction and contraception as well as user-friendly reproductive services. A weakness of our study is ~~that a non-validated survey was used~~ ~~small sample size, which means it is not sufficiently powerful to draw inferences concerning women and family planning in the whole of Pakistan.~~ Larger scale appraisal, possibly with validated survey tools if available, may be required to confirm our initial data; subject to confirmation of the trends observed, intervention research is indicated to identify appropriate strategies to address the apparent needs of Pakistani women. Evidence suggests that family planning should definitely be a 'two-way street'. Akin to results in our study, when level of education is taken into account, in Pakistani males a similar split is seen in terms of age of marriage, use of contraception and the size of family that is decided on¹⁰⁶. In the present study male partners of the female participants were not surveyed, and neither were participants asked to disclose their partner's level of education. Therefore, how this may impact on family planning KAP of the participants cannot be deduced, although to some extent a degree of parity in level of education between partners is to be expected, based on previous publications on this

topic.⁵ The reasons for not exploring this in this current study was to a) focus on the female perspective and to avoid encroaching by asking information pertaining to their partner, and b) optimise recruitment of participants since the setting of an obstetrics & gynaecology department was used. As Garg and Singh pointed out recently in relation to family planning in India, gender equity needs to be introduced in a careful manner to encourage dialogue between couples and subsequent increased uptake in family planning services by both sexes.^{117.}

Our study would support that increased level of education may enhance dialogue, as evidenced by higher rates of joint-decisions concerning family size among those who attended further education. Improved levels of education may also positively influence income, in itself a determinant for smaller family sizes.^{12,138-9.}

Family planning is an important issue for many developing countries, including Pakistan. The most common contraceptive methods in use in Pakistan are either long-term or have low effectiveness and our study results are in agreement with this finding.^{140.} These include female sterilization (8% of married women), traditional methods such as rhythm and withdrawal (8%), and condoms (7%). Contraceptive use is lowest among young and rural women, but rises with education, as shown in our study. Women living in urban areas are two-thirds as likely to use modern contraceptives as those in rural areas (30 and 18% prevalence rates, respectively). The positive impact of female education on knowledge of contraceptives has been shown previously.^{154.} However, in our study their use also went up whereas in Farwa's report, involving women in Rawalpindi, this was not observed.^{154.}

The division between women with differing levels of education is narrower than the rural-urban divide, but still significant. The link between women's higher levels of education and smaller family size is clear across the developing world; on average, each year of a girls' education has been found to reduce fertility rates by 0.3 to 0.5 children per woman.^{162.} This is a particularly relevant point for Pakistan, where most women— 65% of those surveyed in the Pakistan Demographic and Health Survey — have no education.

Some effective family planning initiatives are taking place in various locations in Pakistan, such as a Marie Stopes Society scheme involving vouchers in rural areas.^{173.} However, family planning efforts will require sufficient funding and support on a national level, plus optimisation of initiatives such as the Lady Health Worker⁴. A recent appraisal of Pakistan's family planning efforts have shown that a lack of funds, resulting in employees not receiving

wages and poor integration of programs at a local level, may hamper progress². These issues are not confined to Pakistan alone; for example, Bangladesh faces similar challenges.¹⁸⁴ Although a wide target group was included in this study, there are some sampling limitations. Only one region in Pakistan was covered, and the setting was a healthcare institution (although in case of the latter point, patients, visitors and staff were approached). ~~The sample size used for the survey limits the ability to extend the results of the study to Pakistan as a whole. Furthermore, the questionnaires used were non-validated and therefore the exact reproducibility has not been established. Nevertheless,~~ This study still provides an insight into the status of family planning, and the clear influence that education has, from a woman's perspective in a large city and surrounding rural communities in South-East Pakistan.

Conclusion

This explorative prospective KAP study indicates that the role of women in decision making around family planning is still limited in developing countries. However, a higher level of education achieved by women is associated with more input by said women in terms of the application of family planning and the use of contraceptives. A dominance of the husband's wishes in terms of family size also diminishes as a woman's level of education rises. Further large scale research is indicated to be able to confirm these initial findings.

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2.—

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Table 1, Sociodemographic distribution of respondents

	N (%), out of 324 respondents		
Place of residence	Rural	Sub-urban	Urban
	102 (32%)	24 (7%)	198 (61%)
Education level	Illiterate	Secondary education	Higher education
	111 (34%)	87 (27%)	126 (39%)
Professional status	Housewife / not in employment	Employed	
	231 (71%)	93 (29%)	

Table 2, Participants' choice in family planning, full cohort.

Question	Yes, n (%)	No, n (%)
Did you ever think of the (planned) size of your family?	145 (45%)	179 (55%)
Did you have the power to decide the family size?	193 (60%)	131 (40%)
Have you ever thought of using contraception?	194 (60%)	130 (40%)
Have you ever used any family planning <u>contraceptives methods (i.e. contraception)</u> ?	146 (45%)	178 (55%)
Are you currently using any family planning method?	109 (34%)	215 (66%)
May you visit a health care facility?	225 (69%)	99 (31%)
<u>Is the interval between pregnancies more than 2 years?</u>	<u>209 (65%)</u>	<u>115 (35%)</u>
Is the interval between pregnancies more than 2 years?	209 (65%)	115 (35%)

Are you in favor of sterilization after achieving the desired family size?	145 (45%)	179 (55%)
Is your present family size based on:		
—Your wishes only?	29 (9%)	295 (91%)
—Your husband?	44 (14%)	280 (86%)
—In-law wishes?	1 (<1%)	323 (99%)
—Combined wishes?	108 (33%)	216 (67%)
—Unplanned pregnancies?	142 (44%)	182 (56%)

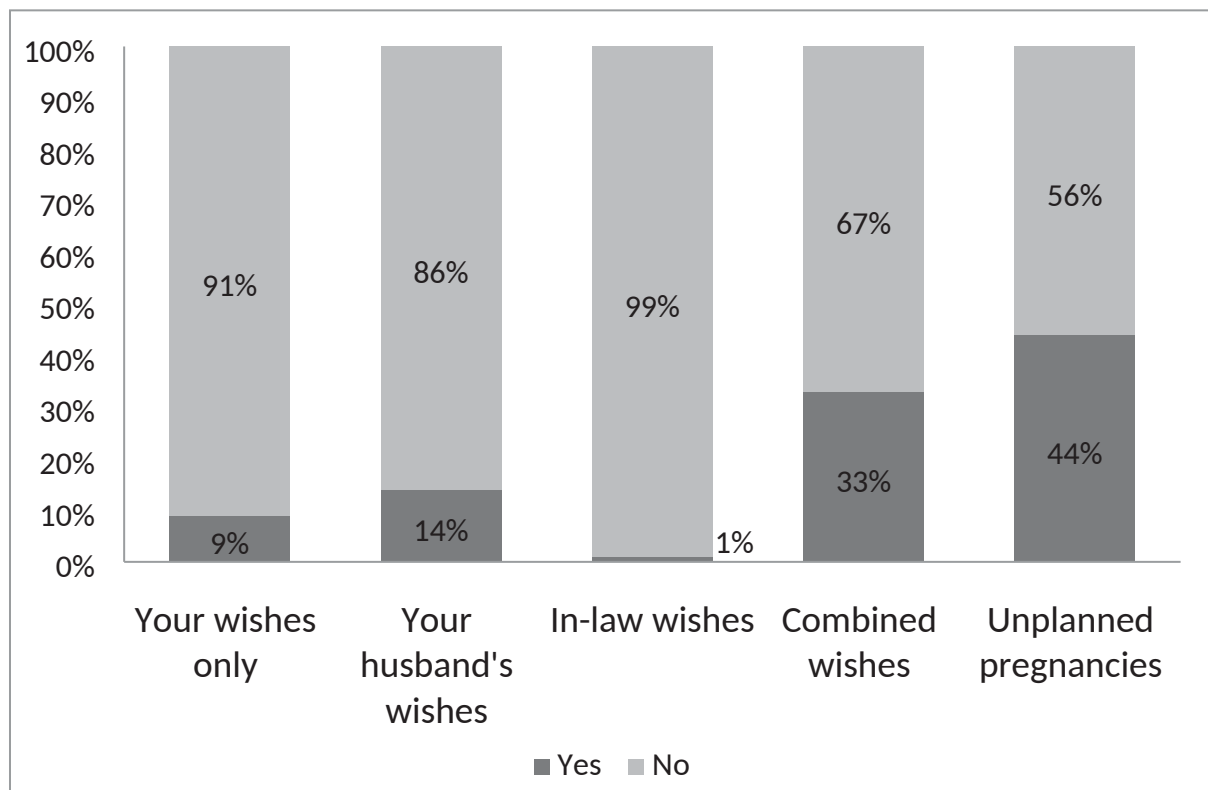
Table 3, Participants' choice in family planning, stratified by level of education.

Parameter	Total N=324	No Education N=111	Primary School completed N=87	Secondary School and beyond N=126	P-value
Exact age of marriage (Years, ± SD)	21.2 ± 4.5	18.9 ± 4.2	20.5 ± 4.1	23.6 ± 3.9	< 0.0001
Power to decide family size, n (%)	193 (59.6%)	42 (37.8%)	46 (52.9%)	105 (83.3%)	< 0.0001
Think of family size, n (%)	145 (44.8)	30 (21%)	33 (23%)	82 (56%)	< 0.0001
Think to practice contraception, n (%)	194 (59.9%)	37 (19%)	58 (30%)	99 (51%)	< 0.0001
Ever use family planning	146 (45%)	27 (19%)	38 (26%)	81 (55%)	< 0.0001
Current use of family planning	109 (34%)	29 (26%)	30 (28%)	50 (46%)	0.08
Power to visit health care facility	225 (69%)	65 (29%)	66 (29%)	94 (42%)	0.009

In favor of sterilization	145 (45%)	41(28%)	41(28%)	63 (44%)	0.011
Interval between pregnancies > 2 years	209 (65%)	74 (35%)	67 (32%)	68 (33%)	0.002
Is your present family size based on:					
Your wishes	29 (9%)	8 (27%)	6 (21%)	15 (52%)	
Husband's wishes	44 (14%)	22 (50%)	14 (32%)	8 (18%)	
In-laws wishes	1 (0.3%)	1 (100%)	0 (0%)	0 (0%)	
Combined wishes	108 (33.3%)	20 (18%)	30 (28%)	58 (54%)	
Unplanned pregnancy	142 (43.8%)	60 (42%)	37 (26%)	45 (32%)	

SD = standard deviation

Table 3, Influences on participants' family size



Answers based on the question: What is your present family size based on? ([n = 324](#))

Disclaimer: None to declare.

Conflicts of interest: None.

Funding disclosure: None to declare