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Does women's agency matter in the formation and realization of fertility desires? An empirical investigation in Egypt and Jordan

Carmen Friedrich

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Carmen Friedrich*

Abstract

This study investigates whether the agency of women in Egypt and Jordan influences their personal ideal number of children and their ability to have no more children than they desire. Moreover, a "couple's perspective" is adopted by examining whether the relationship between women's agency and unwanted births persists even when the husband desires more children than his wife. The study uses data from the 2015 Egypt Health Issues Survey (EHIS) and the 2017-2018 Jordan Population and Family Health Survey (JPFHS). Poisson regressions are used to estimate the association between agency and fertility desires, and linear probability models are used to estimate the association between agency and the ability to have no more children than desired. The results indicate negative associations between women's decision-making power and their personal ideal number of children in Egypt, but not in Jordan. In both countries, being involved in decisions about their own healthcare is positively associated with women's ability to have no more children than desired. However, this positive association is not evident when the husband wants more children than his wife. Among such couples, women's agency is negatively associated with avoiding unwanted births.

Keywords. women's empowerment, decision-making, fertility, ideal number of children, unwanted births, Egypt, Jordan, Middle East and North Africa

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1 Introduction

As in many Middle Eastern and North African (MENA) countries, the gender regimes of Egypt and Jordan can be classified as neopatriarchal (Moghadam, 2020), such that patriarchal family laws and norms are in place. Traditionally, the husband is expected to protect his wife and children and financially provide for them, while the wife is responsible for household and childrearing tasks and is expected to obey her husband (Moghadam, 2004). In this context, most women are economically dependent on men and female labor market participation is low (Assaad et al., 2020). Based on this "patriarchal gender contract" (Moghadam, 2004), childbearing and having a high number of children represents a social norm for women. Consequently, childlessness is rare in the MENA region (Rutstein & Shah, 2004) and women typically have their first birth soon after marriage (Eltigani, 2000; Gebel & Heyne, 2014). Both marriage and motherhood are integral parts of a woman's life course, with marriage legitimizing sexual relationships (Rashad et al., 2005).

Women's empowerment is a concept that stands in contrast to such strict traditional gender role expectations, implying that women can pursue alternative life goals aside from being mothers and wives, which could lead to a lower desired number of children (Upadhyay et al., 2014). Kabeer (1999) defines empowerment as a process over time that includes resources, agency, and achievements; women acquire resources in this process, which enhances their agency, and in turn, their achievements. The key component "agency" refers to women's "capacity to define their own life-choices and to pursue their own goals, even in the face of opposition from others" (Kabeer 1999: 438), and according to Richardson (2018), is a direct indicator of empowerment. Following this definition, decision-making, freedom of movement, financial autonomy, and gender norms are commonly used as measures for agency (Richardson, 2018; Thorpe et al., 2016). While the first three of these measures capture instrumental agency, gender norms capture intrinsic agency (Kabeer, 1999).

In several MENA countries, fertility standstills or even increases in fertility (fertility stalls) have been observed during the transition from high to low fertility (Engelhardt et al., 2018; Krafft et al., 2021). An intriguing observation is that these fertility stalls occur toward the end of the fertility transition (Krafft et al., 2021) and not in the early phases of the transition, like in many sub-Saharan African countries (Schoumaker, 2019). Egypt and Jordan are both interesting cases in this matter. While Egypt experienced a temporary increase in the total fertility rate (TFR) from 3.0 in 2008 to 3.5 in 2014 (Al Zalak & Goujon, 2017; Ambrosetti et al., 2021), Jordan is the first MENA country where a long fertility stall (of around 3.8 children per woman) ended, and since 2012, fertility decline has resumed (Cetorelli & Leone, 2012; Krafft et al., 2021). In both Egypt and Jordan, the mean ideal number of children remains above three and the governments have pointed to population growth as one of the greatest challenges facing the country. Accordingly, they have both set a goal to reach replacement

fertility, and women's empowerment is considered to be key to the success of population strategies (El-Saharty et al., 2022; Higher Population Council [Jordan], 2013).

Previous research in sub-Saharan African and South Asian countries shows that women with more instrumental agency desire fewer children than do women with less instrumental agency (reviewed in Upadhyay et al., 2014). For the MENA context, however, to my knowledge, only one study focusing on Egypt exists (Ambrosetti et al., 2021). Moreover, studies on the relationship between agency and unwanted fertility in the MENA region are completely lacking. However, such evidence is important as, at the aggregate level, both a reduction in fertility desires and a reduction in unwanted fertility are important for fertility decline (Bongaarts & Casterline, 2018). Ambrosetti et al. (2021) found a positive association between Egyptian women's decision-making power (involvement in decisions about visits to family or relatives) and their personal ideal number of children.

My analyses extend the findings of Ambrosetti et al. (2021) by providing evidence on the association between women's agency and fertility desires in an additional MENA country—Jordan—the first country in this region where a fertility stall has recently ended, and by investigating whether agency positively affects women's ability to limit the number of children to their desired fertility. By definition, agency should enable women to pursue their own life goals; in this research, I examine if this is also the case regarding fertility desires. Moreover, I adopt a “couple's perspective” by examining whether the positive effect of agency on preventing unwanted births is also evident when the husband wants more children than his wife. All the analyses are based on data from the 2015 Egypt Health Issues Survey (EHIS) and the 2017-2018 Jordan Population and Family Health Survey (JPFHS), which are both part of the Demographic and Health Surveys (DHS) Program. I use Poisson regressions to estimate the association between agency and fertility desires, and linear probability models to estimate the association between agency and the ability to have no more children than desired.

The results of this study contribute to a better understanding of the relevance and role of women's empowerment for fertility desires and unwanted fertility in the MENA region. In light of governmental goals to reduce fertility, this knowledge could be important for developing effective family planning programs in Egypt and Jordan.

2 Actual, ideal, and unwanted fertility in Egypt and Jordan

The MENA region has experienced a sharp fertility decline in recent decades: the TFR for the region declined from 5.7 in 1980–1984 to 3.1 in 2002 (Tabutin et al., 2005). However, since this period, fertility stalls have been observed in several MENA countries, including Egypt and Jordan (Engelhardt et al., 2018; Krafft et al., 2021). Other countries that have experienced a fertility stall are Algeria, Iraq, Morocco, and Oman (Krafft et al., 2021). In Egypt, the TFR increased from 3.0 in 2008 to 3.5 in 2014 (Al Zalak & Goujon, 2017; Ambrosetti et al., 2021), but by 2018 it had declined again, to 3.1 (Krafft et

al., 2022). This trend differs from that of Jordan, the first MENA country, where a long fertility stall from the late 1990s to 2011 (of around 3.8 children per woman) ended, and since 2012, fertility decline has resumed (Cetorelli & Leone, 2012; Krafft et al., 2021). According to the JPFHS, Jordan's TFR was 2.6 in 2017/2018 (Krafft et al., 2021). Interestingly, for Jordanian women, the personal mean ideal number of children is considerably higher: during the fertility stall period, it was around 4 and then fell to 3.8 in 2017 (Krafft et al., 2021). In Egypt, on the other hand, the observed TFRs are close to the mean personal ideal number of children, with the latter remaining stable at around 3 children between 1988 and 2014 (Al Zalak & Goujon, 2017; Ambrosetti et al., 2019).

Miller and Pasta (Miller, 2011; Miller & Pasta, 1995) distinguish between fertility intentions and fertility desires. While fertility intentions do take personal circumstances or potential obstacles to childbearing into account, such as economic uncertainty (Berninger et al. 2011) or educational attainment (Krapf et al. 2023), fertility desires do not (Philipov & Bernardi, 2011). Therefore, unlike fertility desires, fertility intentions are adapted to the personal situation over the course of life (Iacovou & Tavares, 2011). Women and men can have intentions and desires regarding childbearing in the near future, the specific number of children, and the timing of having a child (Miller, 2011; Miller & Pasta, 1995). This paper focuses on child-number desires only, which differs from concrete child-number intentions. The sole focus on fertility desires is data-driven, since in the 2015 EHIS and the 2017-2018 JPFHS only child-number desires are surveyed. This was taken into consideration when interpreting the results of this study and will be further considered in the discussion.

This study focuses on the personal ideal number of children only, which differs from a societal ideal, which refers to fertility preferences at the normative level, i.e., the ideal number of children for a family in general (Testa, 2012). "The personal ideal, when operationalised to refer to best conditions of life, measures fertility desires as defined in socio-psychological theories" (Philipov & Bernardi, 2011: 496). The personal ideal number of children and the desired number of children are, therefore, two expressions for the same concept. In the DHS Program, the personal ideal number of children is surveyed with the following question: "If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?" (Croft et al., 2018). This notion of "going back in time" is based on a problem referred to in the literature as *ex post* rationalization (Bongaarts, 1990; Casterline & El-Zeini, 2007), which means that women tend to adjust their reported ideal number of children upward to match their actual number of children. But even if this question is asked in relation to a time when the woman had no children, the problem remains—mothers cannot pretend that their children do not exist and their desired family size is still likely to be influenced by their realized fertility. This results in them wanting to avoid reporting a number that is lower than their actual number of children. This is a limitation that will be addressed in the analyses here and kept in mind when interpreting the results.

Although fertility desires may be subject to ex post rationalization (Bongaarts, 1990; Casterline & El-Zeini, 2007), they are an important indicator of fertility transition at the aggregate level. Scholars agree that “a decline in couples’ desired family size is an essential precondition for the fertility transition to take place” (Bongaarts & Casterline, 2018: 793). However, a woman’s ideal number of children does not necessarily correspond to her realized fertility (*ibid.*). Bongaarts and Casterline (2018) showed that the average unwanted birth rate (total wanted fertility rate subtracted from TFR) per woman in 2014 in Egypt and 2012 in Jordan, respectively was 0.7 and 1.0. It is thus important that family planning policies in Egypt and Jordan target not only desired fertility but also unwanted fertility. However, the unwanted birth rate in Jordan is likely to be much lower today because of a sharp drop in the TFR from 3.8 in 2011 to 2.6 in 2018 (Cetorelli & Leone, 2012; Krafft et al., 2021).

3 Women’s agency and fertility

Population strategies in both countries consider women’s empowerment to be key for slowing down population growth (El-Saharty et al., 2022; Higher Population Council [Jordan], 2013). After providing a more comprehensive definition of the concepts of “empowerment” and “agency”, this chapter and Chapter 4 summarize empirical evidence on the relationship between women’s agency—a direct indicator of women’s empowerment (Richardson, 2018)—and fertility desires and unwanted fertility. Due to a dearth of panel data on fertility desires or intentions in high-fertility countries, the vast majority of the reported studies are based on cross-sectional data, which means that these results cannot be interpreted causally and the ex post rationalization problem remains.

This paper follows the definition of women’s agency given by Kabeer (1999): women’s “capacity to define their own life-choices and to pursue their own goals, even in the face of opposition from others” (p. 438). This is one of three components of women’s empowerment, next to resources and achievements. Women’s empowerment “refers to the expansion in people’s ability to make strategic life choices in a context where this ability was previously denied to them” (Kabeer 1999: 437). Women’s empowerment is described as a process over time whereby women acquire resources that enhance their agency, and in turn, their achievements (Kabeer 1999). Thus, agency is the component that links resources to achievements. Resources create conditions that can lead to greater agency and include not only material resources but also social resources (Kabeer 1999). Achievements are the realization of self-defined goals, e.g., labor market participation or health outcomes (Richardson 2018). While agency is a direct measure of empowerment, resources and achievements are only proxy measures of empowerment (Kishor, 2000; Malhotra & Schuler, 2005; Samman & Santos, 2009, as cited in Richardson 2018). Richardson (2018) recommends that researchers use direct indicators of empowerment (i.e., agency) since the causal direction of many indirect measures (e.g., education, employment, or health) is unclear; indirect measures can be resources for agency, achievements of

the empowerment process, or even both. Moreover, resources do not necessarily translate into agency (Kabeer 1999; Malhotra & Schuler 2005). Some scholars distinguish between instrumental agency (the ability to act) and intrinsic qualities of agency, such as gender role attitudes (e.g., Samari 2019b).

This study focuses only on instrumental agency, measured by decision-making. Participation in decision-making is the most commonly used measure for agency in quantitative studies on empowerment in low- and middle-income countries (Donald et al., 2017, Kabeer, 1999, Richardson, 2018). Its use is based on the idea that the more decisions a woman is involved in, the more control she has over her own life (Kishor, 2000). Besides decision-making, further dimensions of agency have been identified and most authors agree that it is a multidimensional construct (Agarwala & Lynch, 2006; Mason, 1986; Richardson, 2018; Yount et al., 2016). Other dimensions that are often used to capture women's agency are freedom of movement and access to/control over financial resources (Carlson et al., 2015; James-Hawkins et al., 2016; Prata et al., 2017; Pratley, 2016; Thorpe et al., 2016; Upadhyay et al., 2014). Empirical evidence supports the idea that women can have agency in one dimension, while not having agency in other dimensions (Samman & Santos, 2009).

Many empirical studies from the fields of sociology, demography, anthropology, and economics have aimed to analyze the effect of women's agency on fertility (reviewed in Upadhyay et al., 2014, and more recent studies, e.g., Ambrosetti et al., 2021; Haque et al., 2021). The vast majority of these studies have found positive associations between women's instrumental agency and lower fertility (number of births and fertility desires). However, only a few studies have been conducted in the MENA region, and these have focused only on Egypt (Ambrosetti et al., 2021; Samari, 2017b). Samari (2017b) analyzed realized fertility and surprisingly found that women with greater instrumental agency (participation in household decision-making, financial autonomy, and freedom of movement) tend to have more children than women with less instrumental agency. This finding is not in line with evidence from South Asia or sub-Saharan Africa, which suggests that women with high agency in these regions have fewer children than women with low agency (e.g., Gudbrandsen, 2013; Hindin, 2000; Khan & Raeside, 1997). Samari (2017b) argues that married Egyptian women with high agency might want to have more children because "women with more agency could be opting to have more children as a means of social and household gains" (p. 575). However, this could also apply to women with less agency and does not explain differences in fertility intentions by level of agency.

To my knowledge, there is no empirical evidence in the MENA context on the relationship between agency and concrete fertility intentions. Ambrosetti et al. (2021) studied fertility desires with data from the 2015 EHIS and found no positive association with women's level of agency, measured by decision-making power. Instead, they found a strong and negative association between married women's agency and their ideal number of children. Another explanation for the positive relationship

between the number of children and agency, as found by Samari (2017b), could be reverse causality. Some previous studies indicate that motherhood or subsequent births might positively affect women's agency in the MENA region (Friedrich et al., 2021; Friedrich, 2023; Samari, 2017a).

4 The role of agency and husband's fertility desires in women's ability to limit their number of children

A small number of studies have examined the role of agency in women's ability to achieve their desired number of children (sub-Saharan Africa: Atake & Ali, 2019; Upadhyay & Karasek, 2012; 53 low- and middle-income countries: Haque et al., 2021). These studies have consistently found positive associations between women's involvement in decision-making and their ability to limit the number of children to their desired fertility. They did not test specific mechanisms that might mediate this relationship, but according to the understanding of agency as the ability to recognize and act on one's own goals, it is assumed that women with greater agency are able to identify their desired number of children and take action to achieve it (e.g., adopting effective birth control). However, to my knowledge, there is no specific evidence for the MENA region.

Previous research in developing countries has shown that if the husband's ideal number of children is higher than the wife's fertility desires, the females are more likely to have more children than they desire (Haque et al., 2021; Upadhyay & Karasek, 2012), which indicates that the husband's fertility desires, although they are not concrete intentions, somehow play a role in what fertility decisions are finally made, and thus, in a woman's ability to have no more children than her desired number. One reason for this could be that husbands have the final voice on contraceptive use, which has been suggested by findings in sub-Saharan Africa and South Asia on husband's and wife's intentions to have more child(ren). Indeed, research suggests that the use of contraception is lower if the husband wants more children than the wife (Mason & Smith, 2000; Speizer & Calhoun, 2022) and higher if only the husband wants to stop childbearing (Dodoo, 1998; Tilahun et al., 2014; Wolff et al., 2000).

These results indicate that a strong patriarchal context enhances the husband's control over the use of contraception. However, findings for the MENA region on the relationship between fertility intentions and contraceptive use are different. Bankole and Singh (1998) and Takruri (2012) showed that Moroccan and Egyptian couples who disagree in their intention to have more children are more likely to use modern contraceptives when only the wife wants no more children compared to when only the husband wants no more. The reason for this remains unclear. However, being involved in decisions regarding the use of family planning methods does not necessarily mean the wife has control over having another child. Takruri (2012) also found that for subsequent childbearing, in Egypt, the

husband's fertility intentions are more important than the wife's fertility intentions, so the final decision on having another child seems to still be made by the husband.

While the importance of the husbands' fertility desires and intentions for fertility outcomes has become increasingly clear, as indicated by the results of the aforementioned studies, it has yet to be empirically tested whether the relationship between a woman's instrumental agency and the achievement of their fertility desires varies with the husband's fertility desires. It also remains unclear whether a woman with agency is indeed able to have no more children as she desires when her husband wishes to have more children.

5 Theory and hypotheses

From a theoretical perspective, women's agency implies that women have choices—including regarding fertility decisions—and that they are able to pursue them, even in the face of reluctance from others (Kabeer, 1999). This stands in contrast to strict traditional gender roles in a strong patriarchal context, according to which, women should obey their husbands and are restricted to the private sphere, to being mothers and wives. By definition, agency enables women to overcome such gender role expectations and dependency on their husbands. Therefore, women with agency should have ideas of being able to pursue and perform alternative life goals and roles aside from being mothers and wives and bearing a high number of children. They should feel that they have control over fertility decisions and are able to formulate and voice their wish to bear a certain number of children, which may deviate from the societal norm. This likely also implies that women with high agency do not accept the idea that women have to bear a large number of children at the expense of their health and well-being. According to the Traits-Desires-Intentions-Behavior (TDIB) theoretical framework (Miller, 2011; Miller & Pasta, 1995), such beliefs and attitudes influence the formation of desires about the number of children an individual wishes to have. Following this framework, I expect women with high instrumental agency to desire to have a lower number of children than women with low instrumental agency.

H1: Women's instrumental agency negatively affects women's desired number of children.

I not only expect that women in the MENA region with higher instrumental agency are more likely to have, on average, a lower personal ideal number of children than women with lower instrumental agency, but also that they are more able to translate their fertility desires into fertility outcomes; more specifically, they are less likely to have unwanted births. Desired fertility, rather than the intended number of children, is a better indicator of whether a woman's actual number of children is wanted (Miller, 2011; Philipov & Bernardi, 2011). This is because child-number intentions reflect (downward) adjustments and compromises of the true reproductive goal, which thus, is the total

number of wanted children due to specific circumstances (ibid.). A birth still can be “unwanted” with respect to current or previous circumstances, but the focus of this study is on comparing a woman’s true desired number of children and their actual number of children near the end of their reproductive time.

According to the traits-desire-intentions sequence, child-number desires are translated into concrete fertility intentions: “desires [...] are psychologically intermediate between motivations, attitudes, and beliefs on the one hand and intentions on the other” (Miller & Pasta, 1995: 531). Desires are wishes of an individual that do not directly lead to action, but that first have to be translated into intentions, which are conscious commitments to act (ibid.). Again, agency implies that women are able to pursue self-defined goals (Kabeer, 1999). Women with higher instrumental agency (e.g., with a higher degree of participation in household and individual decisions) are therefore expected to be more capable of achieving their intended family size by having more control over having children than women with lower instrumental agency. This could include that women with agency are more able and unafraid of talking to their husbands about contraceptive use and their own fertility desires. They may also have better access to and knowledge about contraceptives. Since, according to the TDIB framework, the intended family size is normally lower than the desired family size, women with agency are less likely to have more children than their desired number of children. However, there is one situation where child-number intentions could be higher than child-number desires: intentions take the perceived desires of significant others into account (Miller & Pasta, 1995). Thus, a woman’s child-number intention can be higher than her child-number desires if her husband or family and friends have a higher desired number of children than she does. However, since agency also means that someone is able to pursue their goals “even in the face of opposition from others” (Kabeer, 1999: 438), women with high instrumental agency should be less likely to adapt their intentions to the desires of others. Therefore, overall, I expect that women with high agency are better able to limit their fertility to their desired number of children than women with less agency.

H2: Women’s instrumental agency positively affects women’s ability to have no more children than their personal ideal number of children.

If a woman with high agency in a strong patriarchal context is indeed able to have no more children as she desires, even if her husband wishes to have more children than she does, this still needs to be tested empirically. As stated above, previous studies have not examined whether the husband’s fertility desires or intentions change the relationship between women’s agency and fertility. According to the concept of agency, women with high agency are able to make decisions even against the reluctance of others, including their husbands. A woman with high agency should be able to prevent

unwanted births and it should make no difference if her husband has a higher ideal family size than she does.

H3: The positive effect of women's instrumental agency on women's ability to have no more children than their personal ideal number of children is the same for women who have a lower desired number of children than their husband as for women who have the same or a higher desired number of children than their husband.

6 Method

6.1 Data and sample

I used data from the 2017-2018 JPFHS (Department of Statistics [DOS] and ICF, 2019) and the 2015 EHIS (Ministry of Health and Population [Egypt] et al., 2015b), which are both part of the DHS Program. Both surveys are nationally representative household surveys that provide population and health data, including on women's agency and ideal number of children. The JPFHS and EHIS were the first Demographic and Health Surveys in Egypt and Jordan to ask both males and females about fertility and fertility desires. The adult questionnaire of the 2015 EHIS targets eligible individuals aged 15–59 years, but information on women's fertility desires and decision-making power was collected only for women aged 15–49 (n=7,906). In the 2017-2018 JPFHS, ever-married women aged 15–49 were eligible for an interview (n=14,689). For the analyses, I constructed three subsamples for both countries:

(1) For the analysis of women's fertility desires, I restricted the analytic sample to currently married women aged 15–49 with children (Egypt: n=5,190, Jordan: n=12,197).

(2) For the analysis of the ability to achieve fertility goals, the analytic sample was restricted to currently married women aged 35–49 with children (Egypt: n=2,199, Jordan: n=6,345). I chose the lower age limit of 35 because, in Egypt and Jordan, childbearing is concentrated among women aged 20–34 years (see final reports of the Egypt Demographic and Health Survey [EDHS] 2014 and JPFHS 2017-2018: Department of Statistics [DOS] and ICF, 2019: 75f. & 81; Ministry of Health and Population [Egypt] et al., 2015a: 40f.). This age limit has already been used in previous studies on the effect of agency on women's ability to limit the number of children to their ideal (Atake & Ali, 2019; Haque et al., 2021; Upadhyay & Karasek, 2012).

(3) For the analysis using the moderator "lower fertility desires than husband," I had to restrict the analytic sample to currently married women aged 35–49 with children for whom information on their husband's ideal number of children was available (Egypt: n =956, Jordan: n=1,336). For Jordan, this was possible with a couple recode dataset, which was provided by JPFHS 2017-2018. For the 2015 EHIS individual dataset, I identified married couples by the line number indicating the relationship to

the household head (i.e. wife or husband). However, unfortunately, it was not possible to identify the spouse of a woman who was married but not to the head of the household.

The restriction of all three analytical samples to married women with children was made for the following reasons. As already mentioned above, childless women are likely to differ in their fertility desires from women with children; this is because their ideal number of children is likely to be affected by their realized fertility and experiences as a mother. Therefore, the focus was only on women with children. The samples were additionally restricted to married women since motherhood outside marriage is rare in the MENA context and may be associated with unusual circumstances.

Eventually, after excluding cases because of missing values on agency, fertility desires, or any of the further variables needed in the analysis, the final analytic samples included the following number of cases: (1) Currently married women aged 15–49 with children: 5,090 (Egypt) and 12,054 (Jordan); (2) Currently married women aged 35–49 with children: 2,144 (Egypt) and 6,261 (Jordan); (3) Currently married women aged 35–49 with children with information on husband’s fertility desires: 955 (Egypt) and 1,336 (Jordan).

Fertility desires were measured by the respondent’s stated ideal number of children. In the EHIS 2015, married respondents, irrespective of whether or not they had living children, were asked: “If you could go back to the time before you married and could choose exactly the number of children to have in your whole life, how many would that be?” In the JPFHS 2017-2018, respondents with children were asked: “If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?” In both surveys, some respondents provided non-numeric responses, e.g., “as god wills,” but the prevalence of these responses was rare (EHIS 2015, women: 1.4%, men: 1.6%; JPFHS 2017-2018, women: 1.1%, men: 0.3%) (Department of Statistics [DOS] and ICF, 2019; Ministry of Health and Population [Egypt] et al., 2015b). I coded these few non-numeric responses as missing.

Women’s ability to limit the number of children to their ideal was measured by comparing a woman’s fertility desires and her actual number of children. I subtracted a woman’s ideal number of children from her number of living children and created a binary variable: the woman is *able* to limit her number of children to her ideal (i.e., the woman’s ideal number of children is higher or the same as her actual number of living children = 1) vs. the woman is *not able* to limit her number of children to her ideal (i.e., the woman’s ideal number of children is lower than her actual number of children = 0).

Women’s instrumental agency was measured by a woman’s involvement in decision-making. This dimension of agency has been used in the majority of studies on the relationship between women’s agency and fertility (Upadhyay et al., 2014) and has been empirically validated in the Egyptian context (Cheong et al., 2017; Salem et al., 2020; Yount et al., 2016). In the EHIS 2015 and JPFHS 2017-

2018, the respondents were asked the following three questions: “Who usually makes decisions about making major household purchases?”, “Who usually makes decisions about your health care?”, “Who usually makes decisions about visits to your family or relatives?” The response options for each question were: husband alone, someone else, respondent jointly with husband, respondent alone. I coded each decision as a binary variable indicating whether the woman was involved in this decision (i.e., she decides jointly with her husband or alone = 1) or not (i.e., someone else or her husband decides alone = 0). Based on these three binary variables, I additionally created a count variable that indicated the number of decisions in which the woman is involved (range: 0–3).

The moderator *lower fertility desires than husband* was a dichotomous variable that indicated whether the wife had a higher or the same ideal number of children than/as her husband (= 0) vs. a lower ideal number of children than her husband (= 1).

6.2 Analytic strategy

To assess the association between women’s instrumental agency and women’s fertility desires, Poisson regression models were estimated, because the outcome variable is a discrete count (women’s ideal number of children). Linear probability models were estimated to analyze the association between women’s instrumental agency and women’s ability to have no more children than their ideal. Using the linear probability model for binary dependent variables is recommended by several scholars (e.g., Angrist & Pischke, 2010; Breen et al., 2018; Mood, 2010) because it offers a clear interpretation of the coefficients as a set of average discrete changes in the probability of the outcomes (Wooldridge, 2010). This is much easier to interpret than odds ratios or logit coefficients. Moreover, the linear probability model allows the coefficients across models and between groups to be compared (Mood 2010, Wooldridge 2010a). To test whether the association was weaker if the wife’s ideal number of children was lower than that of her husband, interaction terms between women’s decision-making power and the husbands’ fertility desires were included in the models.

To account for confounding bias, all the models controlled only for the variables expected to have an effect on both the outcome (fertility desires or ability to achieve fertility goals) and women’s decision-making power. To avoid overcontrol and endogenous selection bias, I did not control for variables that are seen to be a consequence of women’s agency and the respective outcome (Elwert & Winship, 2014; Kohler et al., 2023). The control variables in all the models were age, educational attainment (low: no education and incomplete primary; medium: complete primary and incomplete secondary; high: complete secondary and higher), currently employed, household wealth quintile (measured by a composite wealth index, which is available in the original datasets), region of residence (Egypt: Urban Governorates, Lower Egypt, Upper Egypt, Frontier Governorates; Jordan: North, Central, South), and rural or urban residence. For Egypt, the models additionally controlled for religion (Muslim

vs. other religion). Unfortunately, the JPFHS 2017-2018 provides no information on the religion of the respondents. Because stated fertility desires are at risk of ex post rationalization (Bongaarts, 1990; Casterline & El-Zeini, 2007) and there is a possibility that the actual number of children influences women's agency (Friedrich, 2023; Samari, 2017a), the number of living children was included as a further control in the models that analyzed the association between women's fertility desires and women's instrumental agency.

7 Results

7.1 Descriptive results

The descriptive statistics for all three analytic samples are presented in Table 1. The mean ideal number of children among married women aged 15–49 with children (Sample 1) is 3.3 for Egypt and 4.0 for Jordan. Among married women aged 35–49 with children (Sample 2), the mean ideal number of children is around 0.3 higher, and more than half have no more children than their reported ideal number of children (66% in Egypt and 62% in Jordan). This indicates that around one-third of women are unable to limit their fertility to their desired number of children; i.e., they have at least one unwanted birth. Because of “rationalization bias,” this share is probably even higher.

The two upper graphs in Figure 1 show the mean ideal number of children for all the wives and their husbands based on Sample 3, which includes married women aged 35–49 with children, for whom information on the husband's ideal number of children is available. In Egypt, the husbands' mean ideal number of children (3.97) is higher than the wives' (3.50). In Jordan, there is only a very slight difference between husbands and wives: 4.31 and 4.27, respectively. The two lower graphs in Figure 1 show how the ideal number of children differs at the couple level, which also demonstrates country-level differences. In Egypt, many spouses share the same fertility desires (44%) or the wife has a lower fertility desire than the husband (35%), whereas in Jordan, only 24% agree on the ideal number of children. In Jordan, the majority of wives (41%) have a lower ideal number of children than their husbands. However, the proportion of Jordanian women who reported higher fertility desires than their husbands is also high (36%). In Egypt, the proportion is only 22%.

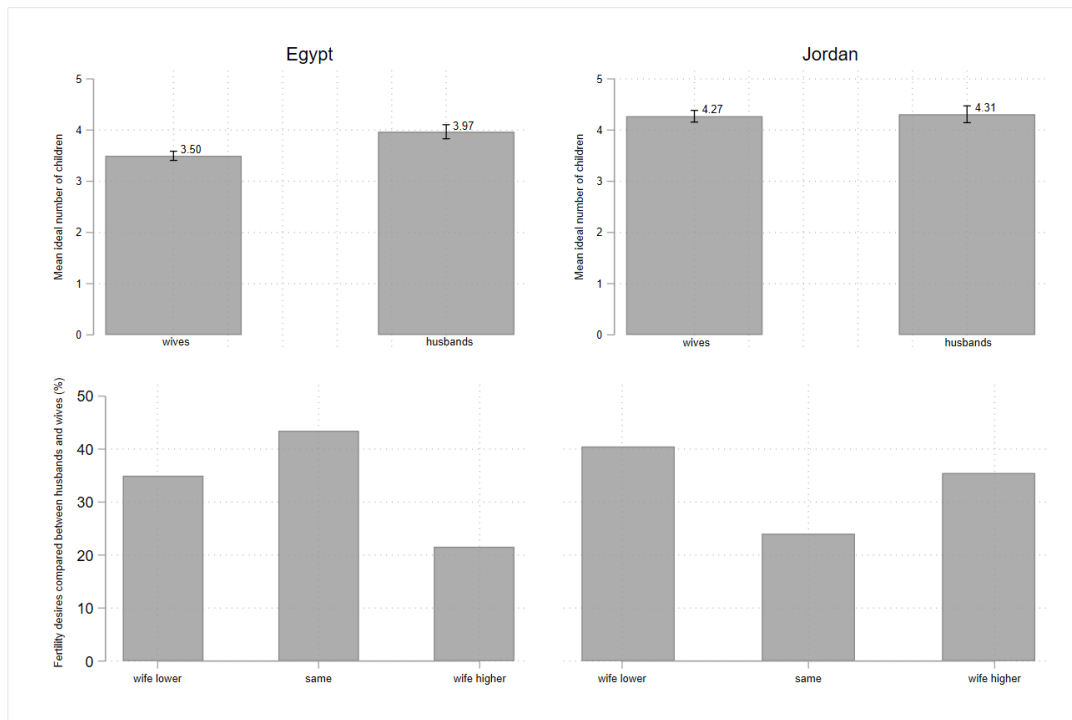
The following descriptive results on women's agency refer to married women aged 15–49 with children only (Sample 1). The majority of women are involved in decisions about major household purchases, visits to family or relatives, and their own healthcare. Women's involvement in decision-making is lower in Egypt than in Jordan. On average, women in Egypt and Jordan are involved in 2.4 and 2.6 decisions (out of three), respectively. Comparing all three decisions separately, the proportion of women involved is lowest for decisions about major household purchases: 75% in Egypt and 81% in Jordan. The percentages are 79% (Egypt) and 88% (Jordan) for decisions about visits to family and relatives, and 87% (Egypt) and 91% (Jordan) for decisions about their own health care.

Table 1. Descriptive statistics (proportions or means (standard deviations in parentheses)). EHIS 2015 and JPFHS 2017-18.

	Sample 1 ¹		Sample 2 ²		Sample 3 ³	
	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan
Ideal number of children	3.301 (1.396)	4.031 (1.877)	3.585 (1.589)	4.240 (2.066)	3.497 (1.412)	4.270 (2.132)
Has no more children than ideal	.785	.735	.664	.618	.682	.613
Wife has a lower ideal number of children than husband	-	-	-	-	.350	.405
<i>Main predictor</i>						
Involvement in decision-making						
Count	2.404 (0.951)	2.600 (0.824)	2.446 (0.922)	2.617 (0.805)	2.447 (0.891)	2.603 (0.817)
Major household purchases	.745	.808	.765	.812	.763	.803
Visits to family or relatives	.787	.8824	.801	.891	.792	.888
Health care	.872	.907	.880	.913	.892	.912
<i>Controls</i>						
Age	33.228 (7.954)	35.149 (8.089)	41.135 (4.322)	41.752 (4.343)	39.395 (3.505)	41.696 (4.298)
Number of living children	2.904 (1.403)	3.594 (1.905)	3.667 (1.431)	4.528 (1.878)	3.562 (1.323)	4.626 (1.876)
Educational attainment						
Low	26.916	7.035	37.127	8.896	32.356	8.757
Medium	18.939	44.740	17.724	46.606	17.382	46.931
High	54.145	48.225	45.149	44.498	50.262	44.311
Currently employed	.142	.131	.191	.146	.199	.161
Wealth quintile						
Lowest	20.079	29.036	22.062	25.044	20.419	21.407
Second	17.898	24.838	17.537	22.712	17.173	23.503
Middle	16.483	21.246	12.920	21.019	13.508	21.257
Fourth	20.825	15.638	19.963	18.160	21.990	19.162
Highest	24.715	9.242	27.519	13.065	26.911	14.671
Muslim	.948	-	.941	-	.943	-
Urban	.450	.797	.501	.793	.507	.784
Region						
Egypt						
Urban	16.483	-	18.563	-	18.848	-
Governorates						
Lower Egypt	38.173	-	39.599	-	40.000	-
Upper Egypt	38.939	-	35.354	-	32.775	-
Frontier	6.405	-	6.483	-	8.377	-
Governorates						
Jordan						
North	-	35.797	-	34.915	-	35.180
Central	-	35.026	-	36.128	-	35.105
South	-	29.177	-	28.957	-	29.716
Number of cases	5,090	12,054	2,144	6,261	955	1,336

Notes: ¹currently married women with children aged 15-49, ²currently married women with children aged 35-49, ³currently married women with children aged 35-49 with information on husband's fertility desires.

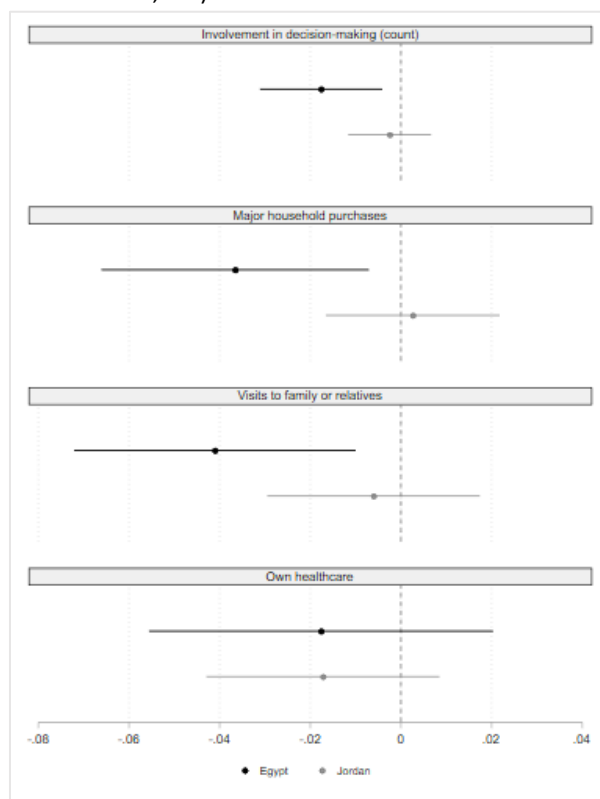
Figure 1. Fertility desires of currently married women with children aged 35-49 with information on husband's fertility desires (Sample 3; Egypt: n = 955, Jordan: n= 1,336).



7.2 Multivariate analysis results

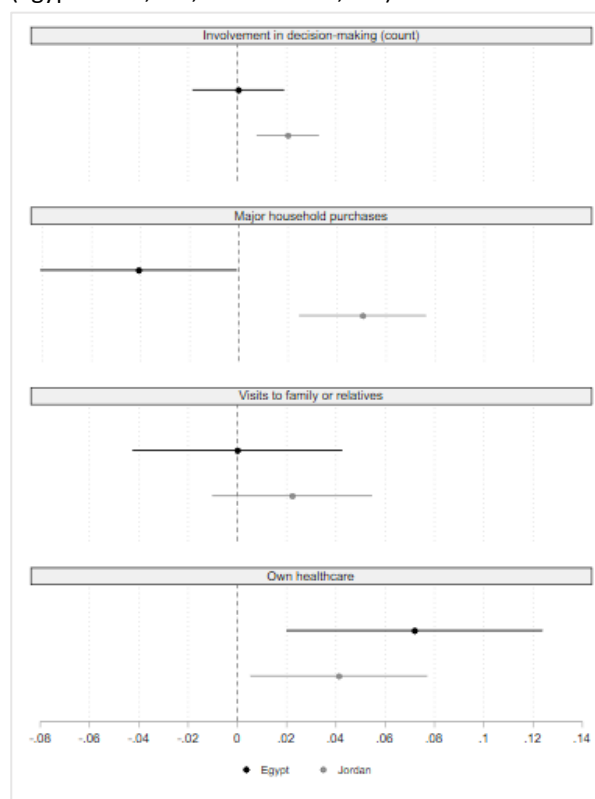
Figure 2 shows the results of the Poisson regression models, which estimated the association between women's involvement in decision-making and fertility desires. Poisson regression coefficients can be interpreted as changes in the logs of the expected counts and thus $\exp(b)$ can be interpreted in terms of percent changes. In both countries, Egypt and Jordan, I find a negative association between decision-making power and a higher ideal number of children. However, only Egypt shows statistically significant associations; therefore, hypothesis H1 ("Women's instrumental agency negatively affects women's desired number of children") is only supported in the context of Egypt. For Egyptian women, if the number of decisions they are involved in increases by one decision, the desired number of children decreases by 2% ($\exp(-0.02)-1$, 90% confidence interval (CI) [-0.03, -0.004]). Looking at the three decision items separately, in Egypt, the association is only statistically significant for two decisions: being involved in decisions about major household purchases and about visits decreases the ideal number of children by 4% ($\exp(-0.04)-1$, 90% CI [-0.07, -0.01]).

Figure 2. Coefficient estimates of involvement in decision-making (Poisson regression models, dependent variable: ideal number of children). Currently married women with children aged 15-49 (Egypt: n = 5,090, Jordan: n= 12,054).



Note: 90% confidence intervals are displayed. All models controlled for age, education, currently employed, household wealth quintile, living children, region, urban. For Egypt, the models additionally control for religion. Full models are presented in Table A1.

Figure 3. Coefficient estimates of involvement in decision-making (linear probability models, dependent variable: ability to limit the number of children to ideal). Currently married women with children aged 35-49 (Egypt: n = 2,144, Jordan: n= 6,261).



Note: 90% confidence intervals are displayed. All models controlled for age, education, currently employed, household wealth quintile, living children, region, urban. For Egypt, the models additionally control for religion. Full models are presented in Table A2.

The results of the linear probability models, which tested the association between women's decision-making power and their ability to limit fertility to their ideal number of children, are presented in Figure 3. For the number of decisions a woman is involved in, only Jordan shows a positive, statistically significant association with having no unwanted births. If the number of decisions a woman in Jordan is involved in increases by one decision, the probability of having unwanted birth(s) decreases by 2% (90% CI [0.01, 0.03]).

In both countries, however, having some say in healthcare decisions seems to be relevant for women's ability to realize their fertility desires. In Egypt, being involved in these decisions increases the probability of achieving fertility desires by 7% (90% CI [0.02, 0.12]). The results for Jordan also show a positive but smaller association (4%, 90% CI [0.01, 0.08]).

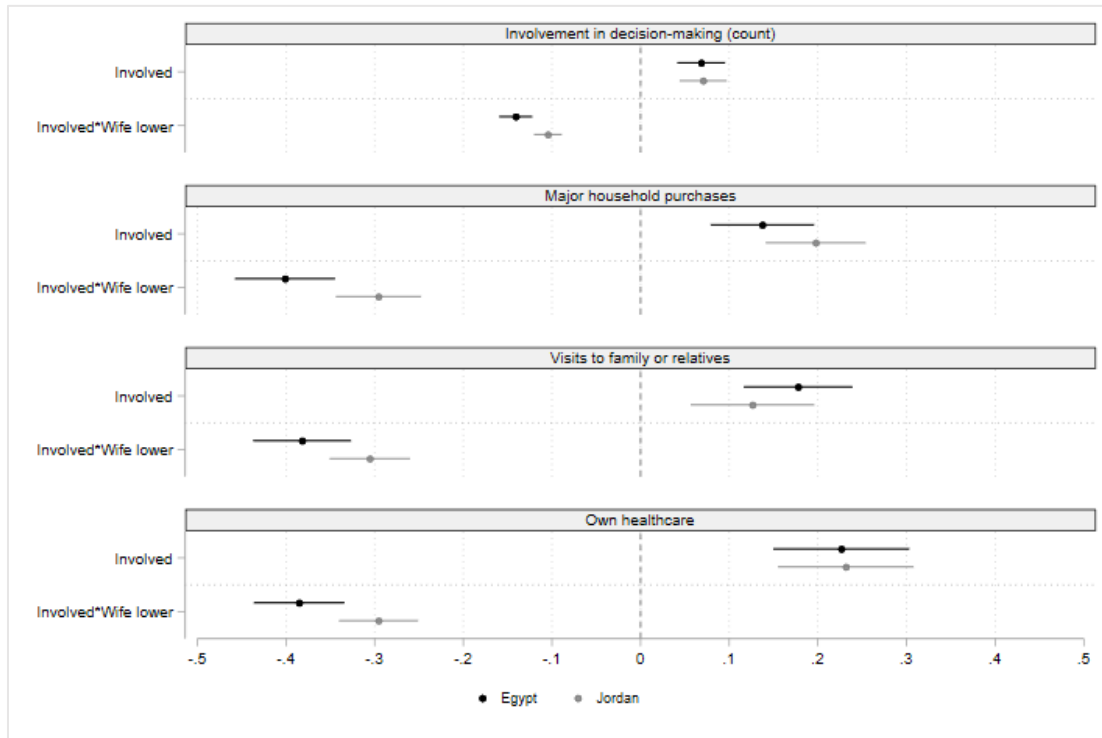
In Jordan, being involved in decisions about major household purchases is positively associated with women's ability to achieve their desired fertility; having some say about major household

purchases increases the probability of Jordanian women having no more children than the desired number by 5% (90% CI [0.02, 0.08]). Surprisingly, in Egypt, the association between being involved in decisions about major household purchases and having unwanted birth(s) is negative; being involved in such decisions decreases the probability of Egyptian women having no unwanted births by 4% (90% CI [-0.08, -0.001]). However, the p-value is 0.094; therefore, the association is only statistically significant at the 10% level. For decision-making power about visits to family or relatives, the results for Egypt show no association, while for Jordan, there is a small positive, but not statistically significant association. In sum, for Jordan and Egypt, the results support hypothesis H2 (“Women’s instrumental agency positively affects women’s ability to have no more children than their personal ideal number of children”) only regarding wives’ involvement in decisions about their own health care.

Figure 4 presents the results of the linear probability models, which estimated how the association between women’s decision-making power and their ability to have no more children than their desired fertility differs by the fertility desires concordance between spouses. All the models included the interaction terms for women’s involvement in decision-making and the moderator “lower fertility desires than husband” (wife has a higher or the same ideal number of children as her husband [= 0] vs. wife has a lower ideal number of children than her husband [= 1]). The results are similar for both countries. I find a positive association between having a say in decisions and the ability to have no more children than desired only for women who had the same or a higher ideal number of children than their husbands. All the associations are strong and statistically significant. For example, for women who do not have lower fertility desires than their husbands, being involved in decisions about their own healthcare increases the probability of having no more children than their ideal number of children by around 23% in Egypt and Jordan (90% CIs, [0.15, 0.30] and [0.16, 0.31], respectively).

Surprisingly, I find a negative association between having decision-making power and the ability to realize fertility desires for women who have a lower ideal number of children than their husbands. For instance, for women who have lower fertility desires than their husbands, having a say in decisions about their own healthcare decreases the probability of having no more children than their ideal number of children by 16% ($-0.39 + (1 \cdot 0.23)$) and 7% ($-0.30 + (1 \cdot 0.23)$) for Egypt and Jordan, respectively. These results do not confirm hypothesis H3 (“The positive effect of women’s instrumental agency on women’s ability to have no more children than their personal ideal number of children is the same for women who have a lower desired number of children than their husband as for women who have the same or a higher desired number of children than their husband”).

Figure 4. Coefficient estimates of involvement in decision-making for women who have the same or a higher desired number of children than their husband and of the interaction term between involvement in decision-making and the wife has a lower desired number of children (linear probability models, dependent variable: ability to limit the number of children to ideal). Currently married women with children aged 35-49 with information on husband’s fertility desires (Egypt: n = 955, Jordan: n= 1,336).



Note: 90% confidence intervals are displayed. All models controlled for age, education, currently employed, household wealth quintile, region, urban. For Egypt, the models additionally control for religion. Full models are presented in Table A3.

8 Discussion and conclusion

This study examined how women’s agency, specifically decision-making power, is associated with their ideal number of children and their ability to limit their fertility in Egypt and Jordan. On the aggregate level, both a reduction in fertility desires and unwanted fertility are important for fertility decline (Bongaarts & Casterline, 2018), which is a goal set by the governments of the two countries. Adopting a couple’s perspective, the analyses also showed how the relationship between agency and preventing unwanted births varies by the agreement about fertility desires between spouses.

In line with the findings of Ambrosetti et al. (2021), the results suggest that married Egyptian women with higher decision-making power have a lower ideal number of children. While Ambrosetti et al. (2021) found this negative relationship only for the decision about visits to family and relatives, the results of this study also showed a negative association regarding the involvement in decisions about large household purchases. There were no statistically significant associations between agency and fertility desires in Jordan. However, the results indicate that women in Jordan with more decision-making power are better able to limit their fertility to their ideal number of children than women with

lower involvement in decision-making. Furthermore, in both countries, wives' having a say in their own health care seems to be important for avoiding unwanted births. These results corroborate previous findings from other regions, which also show a positive relationship between women's empowerment and their ability to limit their fertility (Atake & Ali, 2019; Haque et al., 2021; Upadhyay & Karasek, 2012). However, these studies did not present the results separately for the different decision-making domains; therefore, it is not possible to verify whether they also found a significant association for involvement in healthcare decisions. A woman who is free to decide about her medical treatment may have better access to and knowledge about contraceptives and might be aware of the health benefits of spacing births. When decisions about women's health care are made jointly by husband and wife, this could also mean that the spouses discuss openly their contraceptive use, and alongside this, their fertility desires, which could lead to the alignment and concordance of spouses' family planning and fertility desires.

Further analyses showed that in both countries, women's agency is positively associated with women's ability to limit their fertility *only* when husband and wife agree on the ideal number of children, or when the wife has a higher ideal number of children than her husband. This result suggests that in the patriarchal context of the MENA region, it is eventually the husband who decides about realized fertility if he has a higher ideal number of children than his wife, and that the wife's agency does not matter in this case. Thus, the positive effect of a woman's agency on her bargaining power and spousal communication seems to be very weak or nonexistent when her husband wants more children than she does, indicating the presence of strong patriarchal social structures. Women who have the same or higher fertility desires than their husbands do not have to argue about not having more children than their ideal number of children. Therefore, the positive impact of agency on preventing unwanted births among these women is probably not due to their higher bargaining power, but rather to better access to and knowledge about contraceptives and a preference for spacing births. The results also showed that the wife's decision-making power was even negatively associated with avoiding unwanted births when the husband was the one with the higher fertility desires. This negative association is puzzling and should be investigated in future research. One explanation—at least for Egypt—could be that women with higher agency prefer a lower number of children, therefore the gap to the husband's fertility desires could be larger than for women with lower agency, who are likely to have a higher ideal number of children. Strong disagreement between husband and wife about the ideal number of children could make it more difficult for women to fulfill their fertility desires.

This study has some limitations. First, although the results give valuable insights into the possible mechanisms behind the relationship between agency and fertility desires and unwanted births, it was beyond the scope of this study to test such mechanisms.

Second, this study could not draw conclusions on the effect of agency on concrete fertility intentions, as only desired fertility could be analyzed. This also implies that “having unwanted birth(s)” refers only to the ideal number of children, and thus, the results do not provide insight into the effect of agency on births that might be unwanted due to specific circumstances, e.g., financial shortages.

Third, another limitation of this study refers to the measurement of desired fertility. Due to the problem of ex post rationalization (Bongaarts, 1990; Casterline & El-Zeini, 2007)—which in this context means that women tend to adjust their reported ideal number of children upward to match their actual number of children—the negative association between agency and ideal number of children might have been underestimated and the positive association between agency and the ability to limit fertility might have been overestimated. The question-wording in the DHS attempts to address this issue by asking about the ideal number of children if the woman could go back to the time when she had no children (The DHS Program, 2020). However, this cannot be expected to have resolved the problem completely.

Fourth, as in previous studies, due to the lack of panel data, it was not possible to determine a causal relationship and this study could not compare young, childless women’s desired number of children to their realized number of children at the end of their reproductive lifespan. The reported desired fertility at the time of the interview could already have been changed over the life course; e.g., women might have adjusted their ideal number of children downwards at the end of their reproductive lifespan if they perceived that their initial ideals were unlikely to be fulfilled (Gray et al., 2013). Repeated observations of the fertility intentions of the same individuals over time would also make it possible to compare the realization of past short-term fertility intentions (e.g., the intention not to have a child in the next three years) between women with high and low agency, and unwanted fertility could be estimated more precisely since ex post realization could lead to an underestimation of unwanted births. Large-scale panel surveys that include questions about women’s agency and fertility would therefore be of great importance and would open up new possibilities for future research.

Finally, it should be noted that the sample size for the analyses on fertility outcomes was substantially reduced because the sample had to be restricted to women for whom information on their husband’s fertility desires was available. Despite this sample reduction, however, the inclusion of both spouses’ fertility desires in the analyses provided valuable insights. In general, more research and data at the couple level is necessary to include husband characteristics in the analysis. For example, it would be important to explore whether women with agency have husbands with less traditional gender role attitudes, and thus, it may not be only the wives’ agency but also their husband’s attitudes that enable them to limit their fertility

The findings of this study suggest that promoting women’s empowerment is important to reduce fertility desires and unwanted births in the MENA region. In particular, fostering women’s

decision-making power over their own health care seems to be essential for them to avoid having more children than they want. However, for Jordan, no negative association between agency and ideal number of children was found, and the reasons for this should be investigated in future studies. The results of the analyses that considered husbands' fertility desires highlight the need for family planning programs to also target men, since the results indicate that women with high agency are unable to limit their fertility to their desired number of children if their husbands want more children than they do. In a patriarchal society, where it is eventually the husband who decides on the number of children, a fertility decline is only possible if both men's and women's fertility desires decline. Men also need to be educated about contraception and reproductive health so that women do not have to give birth at the expense of their well-being.

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Appendix

Table A1. Coefficient estimates of involvement in decision-making on ideal number of children from Poisson regression models, currently married women with children aged 15-49.

	Involvement in decision-making (count)		Major household purchases		Visits to family or relatives		Own healthcare	
	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan
Involved	-0.018*	-0.002	-0.037*	0.003	-0.041*	-0.006	-0.018	-0.017
	(0.008)	(0.006)	(0.018)	(0.012)	(0.019)	(0.014)	(0.023)	(0.016)
Number of living children	0.081***	0.053***	0.082***	0.053***	0.081***	0.053***	0.082***	0.053***
	(0.007)	(0.003)	(0.007)	(0.003)	(0.007)	(0.003)	(0.007)	(0.003)
Age	0.002+	0.000	0.002+	0.000	0.002+	0.000	0.002+	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education (ref. = low)								
medium	0.015	-0.034+	0.015	-0.034+	0.015	-0.034+	0.014	-0.033+
	(0.024)	(0.018)	(0.024)	(0.018)	(0.024)	(0.018)	(0.024)	(0.018)
high	-0.023	-0.058**	-0.024	-0.059**	-0.023	-0.058**	-0.025	-0.057**
	(0.021)	(0.019)	(0.021)	(0.019)	(0.021)	(0.019)	(0.021)	(0.019)
Employed	0.033	0.013	0.032	0.012	0.032	0.013	0.029	0.013
	(0.024)	(0.014)	(0.024)	(0.014)	(0.024)	(0.014)	(0.024)	(0.014)
Wealth quintiles (ref. = poorest)								
poorer	0.010	-0.015	0.009	-0.016	0.008	-0.015	0.008	-0.015
	(0.024)	(0.013)	(0.024)	(0.013)	(0.024)	(0.013)	(0.024)	(0.013)
middle	0.006	-0.007	0.006	-0.007	0.003	-0.007	0.004	-0.006
	(0.027)	(0.014)	(0.027)	(0.014)	(0.027)	(0.014)	(0.027)	(0.014)
richer	-0.039	-0.007	-0.039	-0.008	-0.043	-0.007	-0.043	-0.007
	(0.031)	(0.015)	(0.031)	(0.015)	(0.031)	(0.015)	(0.031)	(0.015)
richest	-0.055	-0.032+	-0.055	-0.032+	-0.059	-0.032+	-0.061+	-0.032
	(0.037)	(0.019)	(0.037)	(0.019)	(0.037)	(0.019)	(0.037)	(0.019)
Muslim	0.085*	-	0.085*	-	0.086*	-	0.086*	-
	(0.036)	-	(0.036)	-	(0.036)	-	(0.036)	-
Region (Egypt, ref. = Urban Governorates)								
Lower Egypt	-0.033	-	-0.032	-	-0.034	-	-0.033	-
	(0.028)	-	(0.028)	-	(0.028)	-	(0.028)	-
Upper Egypt	0.088**	-	0.090**	-	0.086**	-	0.087**	-
	(0.028)	-	(0.028)	-	(0.028)	-	(0.028)	-

	Involvement in decision-making (count)		Major household purchases		Visits to family or relatives		Own healthcare	
	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan
Frontier Governorates	0.072+ (0.038)	- -	0.076* (0.038)	- -	0.072+ (0.038)	- -	0.076* (0.038)	- -
Region (Jordan, ref. = North)								
Central	- -	-0.039*** (0.011)	- -	-0.039*** (0.011)	- -	-0.039*** (0.011)	- -	-0.039*** (0.011)
South	- -	-0.004 (0.012)	- -	-0.004 (0.012)	- -	-0.004 (0.012)	- -	-0.005 (0.012)
Urban	-0.029 (0.028)	-0.032** (0.012)	-0.029 (0.028)	-0.032** (0.012)	-0.028 (0.028)	-0.032** (0.012)	-0.027 (0.028)	-0.032** (0.012)
Constant	0.839*** (0.064)	1.288*** (0.032)	0.823*** (0.063)	1.282*** (0.031)	0.832*** (0.064)	1.287*** (0.032)	0.819*** (0.065)	1.296*** (0.032)
BIC	17630.62	48633.15	17631.08	48633.30	17630.52	48633.17	17634.63	48632.14
Observations	5,090	12,054	5,090	12,054	5,090	12,054	5,090	12,054

Significance levels: + p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001

Table A2. Coefficient estimates of involvement in decision-making on the ability to limit the number of children to ideal from linear probability models, currently married women with children aged 35-49.

	Involvement in decision-making (count)		Major household purchases		Visits to family or relatives		Own healthcare	
	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan
(Number of decisions) involved	0.000 (0.011)	0.020** (0.008)	-0.041+ (0.024)	0.050** (0.016)	-0.000 (0.026)	0.022 (0.020)	0.072* (0.032)	0.041+ (0.022)
Age	-0.009*** (0.002)	-0.007*** (0.001)	-0.009*** (0.002)	-0.007*** (0.001)	-0.009*** (0.002)	-0.007*** (0.001)	-0.010*** (0.002)	-0.007*** (0.001)
Education (ref. = low)								
medium	-0.004 (0.030)	-0.007 (0.023)	-0.001 (0.030)	-0.006 (0.023)	-0.004 (0.030)	-0.004 (0.023)	-0.006 (0.030)	-0.005 (0.023)
high	0.089*** (0.026)	0.030 (0.024)	0.090*** (0.026)	0.031 (0.024)	0.089*** (0.026)	0.035 (0.024)	0.087*** (0.026)	0.033 (0.024)
Employed	0.056* (0.027)	0.054** (0.018)	0.061* (0.027)	0.054** (0.018)	0.056* (0.027)	0.057** (0.018)	0.051+ (0.027)	0.056** (0.018)
Wealth quintiles (ref. = poorest)								
poorer	-0.014 (0.033)	0.037* (0.018)	-0.010 (0.033)	0.037* (0.018)	-0.014 (0.033)	0.038* (0.018)	-0.021 (0.033)	0.038* (0.018)
middle	-0.040 (0.038)	0.085*** (0.019)	-0.034 (0.037)	0.084*** (0.019)	-0.039 (0.037)	0.087*** (0.019)	-0.047 (0.037)	0.087*** (0.019)
richer	-0.029 (0.044)	0.108*** (0.020)	-0.021 (0.044)	0.108*** (0.020)	-0.029 (0.043)	0.110*** (0.020)	-0.037 (0.043)	0.109*** (0.020)
richest	-0.037 (0.049)	0.122*** (0.023)	-0.026 (0.049)	0.123*** (0.023)	-0.036 (0.049)	0.124*** (0.023)	-0.046 (0.049)	0.124*** (0.023)
Muslim	-0.085+ (0.044)	-	-0.087* (0.043)	-	-0.085+ (0.043)	-	-0.081+ (0.043)	-
Region (Egypt, ref. = Urban Governorates)								
Lower Egypt	-0.011 (0.034)	-	-0.009 (0.034)	-	-0.011 (0.034)	-	-0.011 (0.034)	-
Upper Egypt	-0.038 (0.034)	-	-0.034 (0.034)	-	-0.038 (0.034)	-	-0.037 (0.034)	-
Frontier Governorates	-0.129** (0.049)	-	-0.129** (0.049)	-	-0.129** (0.049)	-	-0.123* (0.049)	-

	Involvement in decision-making (count)		Major household purchases		Visits to family or relatives		Own healthcare	
	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan
Region (Jordan, ref. = North)								
Central	-	0.072***	-	0.071***	-	0.073***	-	0.073***
		(0.015)		(0.015)		(0.015)		(0.015)
South	-	0.061***	-	0.059***	-	0.060***	-	0.062***
		(0.016)		(0.016)		(0.016)		(0.016)
Urban	0.046	-0.009	0.042	-0.009	0.046	-0.008	0.048	-0.009
	(0.038)	(0.016)	(0.038)	(0.016)	(0.038)	(0.016)	(0.038)	(0.016)
Constant	1.109***	0.757***	1.131***	0.769***	1.110***	0.782***	1.052***	0.765***
	(0.120)	(0.068)	(0.118)	(0.067)	(0.119)	(0.068)	(0.120)	(0.068)
BIC	2918.63	8653.57	2915.80	8650.41	2918.63	8659.40	2913.43	8657.12
Observations	2,144	6,261	2,144	6,261	2,144	6,261	2,144	6,261

Significance levels: † p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001

Table A3. Coefficient estimates of involvement in decision-making on the ability to limit the number of children to ideal from linear probability models, currently married women with children aged 35-49 with information on husband's fertility desires. With interaction term between involvement in decision-making and the difference in fertility ideals between spouses.

	Involvement in decision-making (count)		Major household purchases		Visits to family or relatives		Own healthcare	
	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan
(Number of decisions) involved	0.068*** (0.016)	0.071*** (0.016)	0.137*** (0.035)	0.198*** (0.034)	0.178*** (0.037)	0.126** (0.042)	0.226*** (0.047)	0.232*** (0.046)
(Number of decisions) involved *Wife lower	-0.141*** (0.011)	-0.105*** (0.010)	-0.401*** (0.034)	-0.296*** (0.029)	-0.382*** (0.034)	-0.305*** (0.028)	-0.385*** (0.031)	-0.296*** (0.027)
Age	-0.010* (0.004)	-0.012*** (0.003)	-0.009* (0.004)	-0.011*** (0.003)	-0.009* (0.004)	-0.012*** (0.003)	-0.010* (0.004)	-0.012*** (0.003)
Education (ref. = low)								
medium	-0.016 (0.042)	-0.005 (0.047)	-0.012 (0.043)	-0.011 (0.047)	-0.013 (0.043)	0.004 (0.047)	-0.023 (0.042)	-0.004 (0.047)
high	0.018 (0.036)	0.054 (0.050)	0.011 (0.036)	0.049 (0.051)	0.026 (0.036)	0.064 (0.050)	0.023 (0.036)	0.058 (0.050)
Employed	0.069+ (0.038)	0.013 (0.036)	0.078* (0.038)	0.016 (0.036)	0.071+ (0.038)	0.018 (0.036)	0.070+ (0.037)	0.009 (0.036)
Wealth quintiles (ref. = poorest)								
poorer	0.025 (0.046)	0.034 (0.039)	0.028 (0.046)	0.033 (0.039)	0.027 (0.047)	0.039 (0.039)	0.023 (0.046)	0.035 (0.039)
middle	-0.035 (0.051)	0.063 (0.040)	-0.028 (0.051)	0.065 (0.040)	-0.033 (0.051)	0.071+ (0.040)	-0.040 (0.051)	0.060 (0.040)
richer	-0.061 (0.057)	0.109* (0.043)	-0.050 (0.057)	0.114** (0.043)	-0.056 (0.057)	0.118** (0.043)	-0.067 (0.056)	0.106* (0.043)
richest	-0.029 (0.065)	0.121* (0.047)	-0.013 (0.065)	0.125** (0.047)	-0.026 (0.065)	0.126** (0.047)	-0.037 (0.065)	0.120* (0.047)
Muslim	0.021 (0.062)	- -	0.015 (0.062)	- -	0.012 (0.062)	- -	0.022 (0.062)	- -
Region (Egypt, ref. = Urban Governorates)								
Lower Egypt	0.113* (0.047)	- -	0.114* (0.047)	- -	0.108* (0.048)	- -	0.111* (0.047)	- -
Upper Egypt	0.077+ (0.047)	- -	0.076 (0.047)	- -	0.074 (0.047)	- -	0.073 (0.047)	- -

	Involvement in decision-making (count)		Major household purchases		Visits to family or relatives		Own healthcare	
	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan	Egypt	Jordan
Frontier Governorates	(0.046)	-	(0.047)	-	(0.047)	-	(0.046)	-
	-0.028	-	-0.029	-	-0.037	-	-0.030	-
	(0.061)	-	(0.061)	-	(0.061)	-	(0.061)	-
Region (Jordan, ref. = North)								
Central	-	0.082**	-	0.080**	-	0.081**	-	0.084**
	-	(0.031)	-	(0.031)	-	(0.031)	-	(0.031)
South	-	0.054+	-	0.054+	-	0.049	-	0.062+
	-	(0.032)	-	(0.032)	-	(0.032)	-	(0.032)
Urban	0.136**	0.018	0.128*	0.014	0.129*	0.023	0.143**	0.017
	(0.051)	(0.033)	(0.051)	(0.033)	(0.051)	(0.033)	(0.051)	(0.033)
Constant	0.860***	0.885***	0.902***	0.883***	0.863***	0.932***	0.843***	0.848***
	(0.184)	(0.141)	(0.184)	(0.140)	(0.184)	(0.140)	(0.186)	(0.142)
BIC	1182.07	1798.51	1197.98	1813.05	1203.44	1800.22	1179.94	1798.37
Observations	955	1,336	955	1,336	955	1,336	955	1,336

Significance levels: + p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001