

## A model of women's educational factors related to delaying girls' marriage

Cristine A. Smith · Rebecca Paulson Stone · Sarah Kahando

Published online: 15 July 2012  
© Springer Science+Business Media B.V. 2012

**Abstract** Delaying girls' early marriage is a critical public health and education goal in developing countries, in which their own or their mothers' education may play an important role. This paper reviews the existing evidence of any relationship between girls' schooling or women's literacy education and delayed marriage for themselves or their daughters. The majority of research reports focus on the correlation between girls' schooling and brides' age at first marriage. But it is conceivable that adult women's/mothers' literacy education also has considerable influence on the age at which their daughters are married. Since this aspect has hitherto not been explicitly investigated, the authors propose a model – based on relevant research about the outcomes of girls' schooling and women's literacy education – of the mechanisms that mediate between women's education and delayed marriage for their daughters. The authors argue for research that will inform policy makers interested in helping girls complete secondary schooling about the potential contributions of adult women's literacy education to this goal.

**Keywords** Girls' schooling · Women's literacy education · Early marriage · Child marriage

**Résumé** Un modèle de facteurs éducatifs pour les femmes, en mesure de retarder l'âge de mariage des filles – Retarder le mariage précoce des filles est un objectif décisif de santé publique et d'enseignement public dans les pays en développement, où l'éducation des filles et de leurs mères pourrait jouer un rôle important. Le

---

C. A. Smith (✉) · R. Paulson Stone · S. Kahando  
School of Education, Hills South, University of Massachusetts, Amherst, MA, USA  
e-mail: cristine@educ.umass.edu

R. Paulson Stone  
e-mail: beccajpaul@yahoo.com

S. Kahando  
e-mail: wkahando@gmail.com

présent article recense les données qui révèlent les liens éventuels entre d'une part la scolarité des filles et l'alphabétisation des femmes adultes, et d'autre part un mariage plus tardif pour ces dernières ou pour leurs filles. La plupart des rapports de recherche se concentrent sur la corrélation entre la scolarité des filles et leur âge lors d'un premier mariage. Mais il est concevable que le niveau d'alphabétisme des femmes adultes et des mères exerce également une influence notable sur l'âge de mariage des filles. Cet aspect n'ayant jusqu'ici pas été explicitement examiné, les auteurs proposent un modèle – fondé sur les études relatives aux niveaux scolaires des filles et d'alphabétisation des femmes – de mécanismes permettant de faire le lien entre l'éducation des femmes et le retardement du mariage de leurs filles. Les auteurs préconisent un travail de recherche susceptible à l'avenir d'informer les décideurs souhaitant aider les filles à achever le cycle secondaire, sur la contribution éventuelle à cet objectif de l'alphabétisation des femmes adultes.

**Zusammenfassung** Ein Modell zum Einfluss der Bildungssituation von Frauen auf ein höheres Heiratsalter von Mädchen – Zu den zentralen Problemen der Gesundheits- und Bildungspolitik in Entwicklungsländern zählt die Frühverheiratung von Mädchen. Ein Schlüssel zur Erhöhung des Heiratsalters könnte die Verbesserung der Bildungssituation der Mädchen und ihrer Mütter sein. Dieser Beitrag betrachtet bestehende Hinweise auf Zusammenhänge zwischen der Schulbildung von Mädchen bzw. der Alphabetisierung von Frauen und einem höheren Heiratsalter bei Müttern wie Töchtern. Ein Großteil der vorliegenden Studien konzentriert sich auf den Zusammenhang zwischen der schulischen Ausbildung von Mädchen und dem Heiratsalter. Es erscheint aber naheliegend, dass auch die Alphabetisierung von erwachsenen Frauen bzw. Müttern einen beträchtlichen Einfluss auf das Heiratsalter der Töchter hat. Da dieser Aspekt bislang noch nicht ausführlich untersucht wurde, schlagen die Autorinnen ein aus der einschlägigen Forschung entwickeltes Modell vor, das die Mechanismen im Wirkungsfeld zwischen Frauenbildung und einem späteren Heiratsalter beschreibt. Die Autorinnen plädieren dafür, die Politik durch weitere Forschung in die Lage zu versetzen, Mädchen beim Erwerb einer weiterführenden Schulbildung zu unterstützen, indem sie auf den möglichen Beitrag der Alphabetisierung von Frauen hingewiesen wird.

**Resumen** Un modelo de factores educativos de las mujeres, relacionado con la postergación del matrimonio de niñas y jóvenes – Para los países en desarrollo, retrasar el matrimonio prematuro es un objetivo de crucial importancia en el área de la salud pública y de la educación. En este sentido, puede jugar un papel importante la educación de las niñas o la de sus madres. Este trabajo se ocupa de analizar si existe alguna relación entre la instrucción escolar de las niñas o la alfabetización de las mujeres y la postergación del enlace matrimonial, para ellas o sus hijas. La mayoría de los informes de la investigación se enfocan en la correlación entre instrucción escolar y edad de las novias cuando contraen matrimonio por primera vez. Sin embargo, también es concebible que el grado de alfabetización de la mujer adulta/madre pueda tener una influencia considerable sobre la edad en la que sus hijas contraigan matrimonio. Si bien este aspecto no ha sido investigado explícitamente hasta ahora, los autores proponen un modelo – basado en investigaciones

relevantes sobre los resultados de la instrucción escolar de las niñas y el grado de alfabetización de las mujeres – de los mecanismos que intervienen entre la educación de las mujeres y un enlace matrimonial retrasado para sus hijas. Los autores abogan por un estudio que informe a los responsables de las políticas, interesados en apoyar a las niñas para que completen la escuela secundaria, sobre la potencial contribución que puede tener la alfabetización de las mujeres adultas para alcanzar estos objetivos.

**Резюме** Модель образовательных факторов, определяющих более позднее вступление в брак для девушек – Переход от ранних браков к более позднему вступлению в брак для девушек является важнейшей задачей в области здравоохранения и образования в развивающихся странах, при этом важную роль в данном вопросе может играть образовательный уровень как самих девушек, так и их матерей. В настоящей работе рассматривается связь между школьным образованием или обучением женщин грамотности и более поздним вступлением в брак как для самих женщин, так и для их дочерей. Большая часть исследования сфокусирована на соотношении таких факторов как школьное образование для девочек и возраст невест при вступлении в первый брак. Но весьма вероятно, что и обучение грамотности взрослых женщин/ матерей также оказывает существенное влияние на то, в каком возрасте их дочери вступают в брак. Так как до настоящего времени этому аспекту не уделялось должного внимания, авторы предлагают модель – основанную соответственно на исследовании последствий школьного образования для девочек и обучения женщин основам грамотности – механизмов, определяющих взаимозависимость между получением женщинами образования и более поздним вступлением в брак их дочерей. Авторы подчёркивают важность исследования, направленного на информирование лиц, ответственных за принятие политических решений и заинтересованных в том, чтобы помочь девочкам получить среднее школьное образование, о потенциальном значении обучения грамотности взрослых женщин в деле достижения вышеуказанной цели.

Schoolgirl or bride? For far too many young girls around the world, these roles are mutually exclusive. The importance of girls' and women's education to gender equality is well established (Herz and Sperling 2004), and Education for All<sup>1</sup> and the Millennium Development Goals<sup>2</sup> have set finite targets for improving the lives

<sup>1</sup> Education for All (EFA) is an international initiative by national governments, civil society groups and development agencies such as UNESCO and the World Bank to provide access to education for "every citizen in every society". They have set themselves six specific goals to achieve by 2015, one of which is a 50 per cent improvement in adult literacy, with a special focus on women.

<sup>2</sup> The eight United Nations Millennium Development Goals (MDGs) were formulated at the United Nations Millennium Summit in New York in 2000. All 192 United Nations Member States and at least 23 international organisations agreed to make efforts to achieve them by the year 2015. They include (1)

of girls and women through gender equality. However, while progress in educational access and political representation is being made, progress in employment and reproductive health rights has continued to lag behind (Grown et al. 2008).

A persistent problem in many developing countries is early marriage of girls, defined in the United Nations' *Convention on the Rights of the Child* as occurring before the bride is 18 years of age (UN 1989). According to the Population Council (2010), one-third of girls in developing countries (excluding China) are married before the age of 18; one in seven is married off before the age of 15. Boys may also be married at a young age, but statistics focus primarily on girls' early marriage since "across a wide spectrum of countries and cultures, relatively few men marry during the teenage years" (Mensch et al. 2006, p. 120). Girls' early marriage tends to be especially concentrated in certain areas of Africa and South Asia. According to a 2005 UNICEF study of women between the ages of 15 and 24, 48 per cent of girls in South Asia, 42 per cent of girls in Africa, and 29 per cent of girls in Latin American and the Caribbean were married before the age of 18 (UNICEF 2005). In Niger, 60 per cent of girls under 18 are married, bestowing the label of highest early marriage rate in the world on this country.

The key problems resulting from early marriage include increased number of pregnancies over the lifespan of a girl/woman, poorer health for women and their children, and disruption of schooling and employment, with implications for women's empowerment: "Women who marry young tend to have less education and begin childrearing earlier, and have less decision-making power in the household" (Jensen and Thornton 2003, p. 9). Thus, early marriage plays a role in gender equality within a society "because the marriage process reflects the way family life is organized and functions in a particular culture" (Mensch et al. 2006, p. 118).

Early marriage is associated with higher fertility among women, since married adolescent girls have more childbearing years than women married in adulthood (Grown et al. 2008). A recent study of over 2,400 women in Ethiopia found that "age at first marriage was inversely associated with the number of children ever born alive" (Alene and Worku 2008, p. 397).

Health difficulties for child or adolescent brides include a higher incidence of pregnancy problems, particularly fistula,<sup>3</sup> because of their physical immaturity. Pregnancy-related deaths are the leading cause of death among 15- to 19-year-old girls worldwide, and "mothers in this age group face a 20 to 200 per cent greater chance of dying in pregnancy than women aged 20 to 24" (UNICEF 2001, p. 11). Younger brides face an increased risk of contracting sexually transmitted diseases

---

Footnote 2 continued

eradicating extreme poverty and hunger; (2) achieving universal primary education; (3) promoting gender equality and empowering women; (4) reducing child mortality rates; (5) improving maternal health; (6) combating HIV/AIDS, malaria and other diseases; (7) ensuring environmental sustainability; and (8) developing a global partnership for development.

<sup>3</sup> Obstetric fistula is a childbirth injury that results from an especially difficult childbirth and leaves women unable to control urine and faeces. It is especially common in girls who give birth at a very young age before their bodies are prepared for the demands of childbirth.

(STDs) or the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), due to “both biological factors, such as hormonal fluctuations and the permeability of vaginal tissue, and social factors, such as skewed power relations between women and men that make it difficult for girls and young women to negotiate safe sex” (UNICEF 2001, p. 10). Citing a 2005 Zambian study by Family Health International, May Rihani reports “higher rates of HIV infection among married girls aged 15–19 than among sexually active unmarried girls of the same age ... due to widespread acceptance of male extramarital sexual relationships and the expectation of unprotected sex in marital relationships” (Rihani 2006, p. 52). The children of adolescent mothers also suffer: “If a mother is under 18, her baby's chance of dying in the first year of life is 60 per cent higher than that of a baby born to a mother older than 19” (UNICEF 1994, p. 46). Girls who married early are also more likely to experience domestic violence (Rihani 2006; Jensen and Thornton 2003).

School dropout, and a reduction in opportunities for paid employment is another result of early marriage, since girls in patriarchal societies are relocated to their husband's villages at marriage and their new family may not be interested in continuing a young bride's education. Saranga Jain and Kathleen Kurtz's (2007) analysis is that, with new and increased responsibilities that accompany marriage, opportunities for women and girls to continue their education or work are limited, so that earlywed girls and women remain in the cycle of poverty (Otoo-Oyorley and Pobi 2003; Rihani 2006).

Therefore, the goal is to delay marriage of girls, giving them an opportunity to finish schooling, to mature physically before they become pregnant, to enter wage employment that can help alleviate poverty, and/or to reduce the total number of childbearing years so that both children and mothers are healthier. We know both from recent global reviews of Demographic and Health Surveys and from more country-specific community studies (Singh and Samara 1996; Mensch et al. 2006; Jejeebhoy and Halli 2006) that the age of marriage for girls worldwide is slowly rising, but there is still wide country and regional variation, with millions of girls continuing to be married off as children, especially in sub-Saharan Africa and South Asia (Jensen and Thornton 2003).

A key question, then, for policy makers, is how to bring down early marriage rates for girls in areas where they are still high. One hypothesis is that education plays a strong role because girls' schooling or their mothers' participation in adult literacy programmes is related to delaying girls' marriage. While most of the literature (Gupta et al. 2008; Ikamari 2005) in this area has focused on the relationship between the girls' own schooling and delayed marriage, we know little about whether women's literacy education is related to delays in marriage for their daughters. However, based on research about impacts of women's literacy education on their children's education and health, we can explore whether education could reasonably be expected to have an effect on delaying girls' marriage.

If it is evident or reasonable to expect that there is a relationship between girls' schooling or women's literacy education and delayed marriage, then we need hypotheses about the mechanisms or pathways through which those relationships are realised (Ikamari 2005). For example, one mechanism or pathway between girls'

schooling and delayed marriage may be, quite simply, time spent in school, such that girls who stay in school through secondary education may purposefully delay marriage, or that schooled girls become employed in the wage economy, which is more likely if girls acquire a credential through schooling. Another mechanism may be that mothers who participate in adult literacy programmes are more likely to encourage (or demand) that their daughters stay in school, based on their knowledge of the poor health outcomes for child brides.

The purpose of this article is to review existing research on women's education (either girls' schooling or adult literacy education for women) and delayed marriage, as well as the documented or hypothesised mechanisms that mediate that connection so that we can formulate hypotheses for further research about delaying girls' age of marriage. Such research is critical if policy makers are to make informed decisions about investing in girls' schooling and women's literacy education programmes for the purposes of improving the health and well-being of women and promoting gender equality. In most countries, funding for girls' schooling and for women's literacy education usually comes from the same educational line-item budget, although literacy education generally receives far less funding than does schooling, typically less than one per cent of national education budgets in developing countries (UNESCO 2006). Therefore, it is critical to consider the outcomes of participation in different educational venues – in and out of school – for delaying girls' marriage, in order to develop national policy recommendations for the use of scarce educational resources that contribute to girls' education and later marriage.

## Methodology

We began with a literature search for books and journal articles that addressed the issue of early marriage and its relation to girls' schooling and women's education. All books and articles that were used in this study were accessed in English. We searched for the most recent publications, although we included older publications where they were noted as being "seminal" on the topic or where they focused on under-researched areas (i.e. women's literacy in developing countries). Most country-specific articles reported on research in sub-Saharan Africa and South Asia, where a higher proportion of girls are married off early. Annotations of over 50 research publications were arranged in an Excel file where they were categorised based on their specific focus. The majority of research we found on education and early marriage focuses on girls' schooling, rather than on literacy education for adult women, obviously a limitation for a comprehensive review. We then coded each publication according to the factors – education and others – found by the researchers to be related to girls' age at marriage. From this analysis, the factors most substantiated as influencing girls' age at marriage were found to include:

- Girls' schooling
- Economic status, including employment in the wage economy
- Urban residence
- Bride price and dowry

- Parental education, including maternal literacy

Among these, the existing research points to girls' education as the strongest predictor of changes in early marriage customs. In the sections below, we first describe the difference between schooling for girls and out-of-school literacy education for women, followed by a summary of each of the key factors listed above. Next, because we are particularly interested in how women's education may play a role in delaying daughters' marriages, we discuss hypotheses about the outcomes of women's literacy education as a specific set of factors. We then present a model of the pathways between education and delayed marriage for girls, showing how these factors may mediate between the two. Finally, we formulate hypotheses for future research on women's education and delayed marriage for girls.

### Definitions of schooling and literacy education

We propose, for the purposes of this paper, the following definitions for differentiating between types of education. *Education* is a broad term that covers a wide range of delivery systems with different content for people of different ages. *Formal education* equates to schooling, and all countries have at least the goal of universal enrolment and completion of primary or secondary school for girls. It is commonly held that the purpose of schooling is primarily to help children acquire academic knowledge, literacy and numeracy skills, and skills for being a good citizen.

The purpose of *literacy education* overlaps with that of schooling in its goal of helping participants, usually adult men and women or out-of-school youths and adolescents, to acquire literacy and numeracy skills. Literacy education is often delivered in non-formal education programmes that are organised educational opportunities where the content is at least partly "contextualised" to the specific needs of participants (Rogers 2004) to meet the demands of daily life, such as improving livelihoods, health or community development, rather than acquiring academic knowledge. Adult women and adolescent girls often constitute the majority of learners in literacy education programmes, especially in countries where gender parity in formal schooling is low.

Both the level of education completed and literacy skills, acquired either as a child in school or as an out-of-school adolescent or adult, may thus have separate but important outcomes. Indeed, recent research has demonstrated that literacy skills, as distinct from years of schooling completed, contribute to positive health behaviour and communication skills (Levine and Rowe 2009). Research into "women's education" must also differentiate between girls' schooling and adult literacy classes for women (Chudgar 2009). In short, both venue and student age must be distinguished in order to determine whether it is the time spent in education, the literacy skills acquired, the knowledge gained, the exposure to modern institutions, or other unknown factors that lead to specific outcomes, including delayed marriage.

## Girls' schooling and delayed marriage

Demographic and Health Survey data from 20 countries with the highest prevalence of child marriage reveal that girls' schooling is the most important factor associated with age at marriage (Gupta et al. 2008). Female education is a "protective factor" that decreases girls' risk of child marriage (NRC and IOM 2005). Out of 42 countries analysed by UNICEF, females who had some primary education were significantly less likely to be married off by age 18 than those with no education, and this is true regardless of religion (Jejeebhoy and Halli 2006). "In Indonesia, for example, the median age at first marriage was 18.4 years, but it varied from 16.2 years among women without schooling to 23.2 among those with 10 or more years of education; in Senegal, the difference was 7.7 years and 7.4 in Morocco" (UN DESA 1997, C2. Nuptiality). In one study of 564 Bangladeshi women, none of those who were married off before the age of 19 finished 11 years of schooling (ICDDR, B 2007). An analysis of the marriage patterns of over 7,800 Kenyan women aged 15 to 19 years showed that "the risk of first marriage was 24 percent lower for the women with primary education and 46 percent lower [with] at least secondary education" (Ikamari 2005, p. 21) compared to women with no education and controlling for other factors such as place of residence and religion. In the West African nation of Senegal, only "20 per cent of women who had attended primary school had been married by the age of 18, compared to 36 per cent of those who had not attended school" (UNICEF 2005, p. 6).

Secondary education acts as an even greater protective factor against early marriage for girls. A review of 40 years of policy and programmes in India determined that "education continues to be the single most important predictor of age at marriage over time ... Girls with secondary schooling are approximately 70 percent less likely to marry as children than illiterate girls" (Gupta et al. 2008, p. i). World Fertility Survey (WFS) data from 38 developing countries also indicate that for women with at least seven years of education, the mean age at marriage was almost four years later than that for uneducated women (Jejeebhoy 1995). The protective nature of secondary education against child marriage has been demonstrated in Niger, in Bangladesh and in Tanzania, where "women with secondary education were 92 per cent less likely to be married by the age of 18 than women who had attended primary school only" (UNICEF 2005, p. 6).

Thus, although secondary education seems to be "a much stronger trigger for delaying age at marriage than primary education alone", any amount of education still makes a difference (Gupta et al. 2008, p. 8). Likely explanations for this connection between education and delayed marriage are that:

- educated girls have more autonomy and control over decisions affecting their lives (Jejeebhoy 1995), including the decision to remain single (UN 1995);
- educated girls have more opportunities for employment in the formal wage sector (Jejeebhoy 1995), based on the skills acquired in school (Malhotra 1997);
- educated girls are often less marriageable in areas of the world where girls' education is seen as a morally corrupting influence (Jejeebhoy 1995), or where

husbands prefer to be more educated than wives – “a highly educated woman may spend considerable time attracting a husband” (Yabiku 2004, p. 564);

- educated girls and women have a wider view of the world and “modern ideologies” (Malhotra 1997); and
- educated girls spend more time in school, which is mutually exclusive with marriage, especially in patrilocal societies where a girl who marries often moves to her husband's family house and community, thereby forcing her to drop out of the school she was attending: “school enrolment can temporarily remove young people from the marriage market [because] there is often a strong role conflict between the student and spouse role” (Yabiku 2004, p. 563).

However, more recent research indicates that the relationship between schooling and delayed marriage may be more complex than previously thought. Reviewing both UN census data and Demographic and Health Survey data for over 50 countries, Barbara Mensch et al. (2006) conclude that while expanding educational opportunities for women has had an impact on delaying female age at first marriage, the delay cannot be entirely attributed to education:

Contributory factors examined in the literature and considered here include the decline in arranged marriages, the deficit of available older men with increasing cohort size and the concomitant rise in the cost of dowries in South Asia, changes in the legal age of marriage, and a transformation in global norms about the desirability of early marriage of women (ibid., p. 165).

Indeed, Cynthia Lloyd and Juliet Young claim that the relationship between early marriage, pregnancy and girls' dropout from school is neither causal nor significant, and that “pregnancy and early marriage are more likely to be consequences rather than causes of early school leaving”, since pregnancy and early marriage tend to occur shortly after dropout (Lloyd with Young 2009, p. 27). They claim that girls who are performing poorly in school are more likely to drop out than boys who perform poorly, and that “once girls have left school, pregnancy and/or marriage are likely to follow in short order” (ibid., p. 27). However, these claims beg the question of whether a girls' poor performance in school is an impetus for her family to instigate the process of arranging her marriage, thereby explaining why low-achieving girls are more likely than boys to drop out in the first place.

### **Economic status and delayed marriage**

Economic status is another factor that influences early marriage. Poverty increases the risk of earlier marriage (Singh and Samara 1996) and serves as “a major cause and consequence” (Otoo-Oyortey and Pobi 2003, p. 11). Demographic and Health Survey data (Ikamari 2005) indicate a greater likelihood of early marriage in poorer countries. Twenty of the countries that have a high prevalence of early marriages are amongst the poorest in the world: “In a study of women aged 20 to 24 in 49 countries, child marriage was most common among the poorest 20 percent of households in every country” (Jain and Kurtz 2007, p. 9). Controlling for other

factors such as religion and ethnic group, a girl from the poorest household in Senegal, for example, is more than four times as likely to be married off before age 18 than a girl in the richest household (UNICEF 2005). In Nigeria, 80 per cent of the poorest girls are married before the age of 18, compared to 22 per cent of the richest girls (UNFPA 2003).

One reason is that poorer families have fewer resources to invest in the education of their girls, so girls are less likely to be in school. Girls out of school are thus available for marriage at an earlier age. Another reason why early marriage may be more prevalent in poorer families is the increased time it may take to find a suitable husband (i.e. one who is more educated than the bride) for an educated girl.

Literature on labour force participation indicates that women's willingness and ability to enter the labour market increases with education (Wrigley 1992). In societies where it is acceptable for women to hold jobs outside the home, "women or their parents may defer early marriage in favor of participation in the labor force", assuming jobs are available for single women (Jejeebhoy and Halli 2006, p. 189). Educated women are more likely to enter formal labour markets, such as in Brazil and Guinea where education decreases the incidence of women working in informal and domestic sectors (Herz and Sperling 2004). By comparison, in South Asia, for example, where gender parity in schooling is low, 64 per cent of young women neither work nor study, compared to 5 per cent of young men (Morrison and Sabarwal 2008).

In today's economy, education is generally regarded as "a vehicle for socioeconomic advancement" (Castro Martin and Juarez 1995, p. 53) and a key to individuals' career success. Thus, the demand for education credentials, such as school-leaving certificates and diplomas, has risen with time. Credentials are one measure (along with competence) used to determine job security and wage increases (Bassi 1999). The lack of education credentials hinders women's participation in the labour market, thus increasing the likelihood of their marrying, especially in poor families where dowries increase as girls age, and a girl's bride price<sup>4</sup> could significantly benefit the financial status of her natal family. Susheela Singh and Renee Samara (1996) maintain that educational attainment and labour force participation work together to reduce the economically attractive "hook" of early marriage, especially in communities/countries where the wage economy is robust and women have access to jobs with higher salaries. Economic opportunities delay marriage; parents and daughters in Bangladesh and Taiwan, for example, have shown a willingness to delay marriage with availability of jobs (Mathur et al. 2003). In order to obtain these jobs, girls must have a certain level of education, which again indicates that girls' education indirectly influences age at marriage.

### **Urban residence and delayed marriage**

In rural areas, where child marriage is high, levels of education are low. In Niger, for example, where child marriage in rural areas is double (84 per cent) that of urban

---

<sup>4</sup> A dowry is a payment made by the bride's family to the groom's family; a bride price is paid by the groom's family to the bride's family. Both practices are discussed in more detail later on in this article.

areas (42 per cent), (UNICEF 2010), 83 per cent of girls in the capital Niamey are enrolled in primary school, whereas only 12 per cent of rural girls are enrolled (World Bank data reported in Herz and Sperling 2004, p. 2). The relationship between urban residence and later marriage may be due to the fact that economic opportunities for paid employment are higher in urban than in rural areas, which also causes migration from rural to urban areas. Other reasons for delayed marriage among urban girls include the exposure in cities to cultural differences among diverse populations, higher educational attainment, exposure to modern values and attitudes, and the distance from close community pressures found in rural areas (Singh and Samara 1996; Mensch et al. 2006).

### **Bride price or dowry and delayed marriage**

The monetary costs of arranging marriages for girls may also play a role in the age at which they are married off, through the mechanisms of bride price or dowry. The practice of paying a bride price is now more common (Harrell and Dickey 1985). A bride price is a payment from the groom's family to the bride's family as recognition of a woman's future labour and reproductive capabilities in her new husband's household, an "explicit recognition and valuing of women's productivity and contribution to marriage" (Anderson 2007, p. 170). The payment of a bride price is more customary in societies where women play a strong role in agricultural production (Boserup 1970; Tambiah et al. 1989), such as Kenya, sub-Saharan Africa and China (Anderson 2007). In Kenya, for example, the Kikuyu phrase "*wi wakwa wa buri*" (translated, "you are mine, bought with goats") demonstrates the husband's ownership of the woman and any real or future assets, including children, that she will create within the marriage.

The payment of a dowry, most commonly practised in South Asia, is also an exchange of cash, property or other assets at the time of marriage, but from the bride's family to the groom's family. It is, variously, a form of female inheritance, a form of marriage payment, or a means for families to display their wealth and social status (Harrell and Dickey 1985). Traditionally, payment of a dowry was practised among the upper classes where women's economic roles were more restricted. Therefore, since the woman would most likely not contribute economically to her new household, her family would provide a dowry to the groom and his family as her marital contribution.

The custom of paying a bride price used to be practised more in the lower castes or classes, since women were more likely to be involved in contributing to the family's livelihood, but today the practice of paying a dowry is becoming more widespread among all castes and economic groups and the value of dowries is on the rise (Srinivasan and Lee 2004).

The payment of a bride price may influence decisions about girls' education if bride prices vary by girls' educational level. In Sudan, for example, "the more education a girl has, the lower her bride price, which creates significant opportunity

costs for parents” (Aikman and Unterhalter 2007, p. 97).<sup>5</sup> In these situations, “bridewealth can foster early marriage because it is when a girl is young that her productive labour and reproductive capacities are seen as ‘best buys’ in exchange for valued cattle or other goods” (Mathur et al. 2003, p. 6). In another example, though, in South Africa, educated girls fetch more attractive bride prices (UNFPA 2003). In a recent literature review, Siwan Anderson (2007) proposes that the amount of the bride price is less affected by the family’s socioeconomic level than by the characteristics of the bride: parents can demand a higher price for more educated daughters, because they are entitled to compensation for their investment in their daughter. This, then, may interact with age of marriage, since families may delay marriage for girls in order to increase their education and, thus, the bride price they can negotiate. More recently, researchers have been proposing that the payment of a bride price is becoming more of a burden for the groom and the bride themselves, rather than the groom’s family (Anderson 2007), so that brides with some education and a credential, especially in urban areas where women are becoming more involved in the wage economy, are more valuable, thus possibly contributing to later marriage of girls.

High dowry costs also influence decisions about whether to delay marriage for girls. In Bangladesh, for example, “dowry increases in tandem with age at marriage” which increases pressure on parents to marry off their daughters as early as possible (Mathur et al. 2003, p. 5); dowries in Bangladesh increase with each year that a girl’s marriage is postponed because of the higher value placed on younger brides (Field and Ambrus 2008). This financial pressure to cover dowry costs influences decisions, particularly in poor households, about whether to send girls to school, since scarce resources mean that parents may cut back on educational expenses in order to increase their daughter’s dowry. In other words, parents often have to choose between educating their girls or providing a substantial dowry since, more often than not, they cannot do both (Teays 1991). Also, the more educated a girl becomes, the more limited her marriage options become; she will need a higher dowry to marry someone with equal or higher levels of education, since more educated grooms can ask for a higher dowry from the bride’s family (Jeebhoy and Halli 2006, p. 185). However, Indraneel Dasgupta and Diganta Mukherjee (2003), modelling various factors affecting arranged marriages, conclude that it is social norms allowing parents to have a major say in the choice of wives for their sons, rather than the dowry itself, that keeps the level of girls’ education down.

Dowry amounts have continued to rise in recent years, interacting with girls’ levels of education; in a study of four communities and two cohorts of women in both Hindu and Muslim areas of Uttar Pradesh and Tamil Nadu in India, Shireen J. Jeebhoy and Shiva S. Halli found that:

dowry payments increase systematically and dramatically by woman’s education level, and especially a secondary school education ... compared

<sup>5</sup> Opportunity cost is an economic concept which applies in a situation of choice between several mutually exclusive options. In this particular context, the term refers to the loss of the amount by which the bride price is lowered if the girl continues her education instead of marrying early with a higher bride price being paid to her family by the groom’s family.

to uneducated women, seven times as many secondary schooled women who married more than ten years before the survey had paid dowries in excess of Rs 50,000; this ratio increased to 13 times as many among women marrying more recently ... premarital economic activity appears to reduce dowry payments for all women (Jejeebhoy and Halli 2006, p. 193).

One theory about why dowry values are rising involves the concept of marriage squeeze: "A population with declining mortality (or increasing fertility) will contain larger younger cohorts than older ones. If women tend to marry older men, they will belong to a younger and hence larger cohort, and there will be a surplus of women in the marriage market" (Rao 1993, p. 285). This marriage squeeze, along with the preference for early marriage that is characteristic of South Asia, interacts with the caste system when more women from low-status families are trying to marry up within their caste. Higher competition for fewer upper-status men leads to increased competition for grooms, which prompts parents to begin marriage negotiations for their daughters at an earlier age, knowing that it may take longer to arrange a satisfactory match.

### Parental education and delayed marriage

The connection between parents' education and children's school attendance is well established both in developing and developed countries. In her review of women's education and autonomy, Shireen Jejeebhoy concludes that "Better educated women have higher aspirations for their children's education and are less likely to expect labour support from their school-going children than are uneducated women" (Jejeebhoy 1995, p. 3). Since parental literacy is one of the most effective ways of increasing enrolment at primary level, "increasing the number of women in any population with functional literacy would therefore increase primary enrolment among girls and boys" (Rihani 2006, p. 34). There is also a demonstrated relationship between parents' literacy skills and children's performance in school. For example, the most recent research from the United Kingdom shows "statistically significant links between parents' basic (literacy) skills and their children's test scores, a correlation that holds even when taking the parents' level of education into account" (De Coulon et al. 2008). New research conducted with 3,100 families in Los Angeles, controlling for socioeconomic status, found that their "mother's reading score has the strongest association with inequality in children's achievement among the five SES measures"<sup>6</sup> and that "programmes aimed at reducing socioeconomic inequality in children's skills acquisition should focus specifically on children whose parents have poor reading skills ... by providing adult literacy education to parents" (Sastry and Pebley 2010, p. 796).

Similarly, in a study of supply- and demand-side factors that could increase primary enrolment, the education of adult household members is an important factor

<sup>6</sup> Socioeconomic status (SES) measures combine information about a person's work experience and their individual (or their family's) economic and social position in relation to others, based on income, education and occupation.

in increasing child enrolment on the demand side. Interventions that improve the literacy level of household heads have a substantially larger impact on primary enrolment than income interventions:

Increasing literacy of heads in the bottom quartile would increase overall enrollment by 8 percent; increasing literacy of heads in the bottom half of the distribution would increase enrollment rates by 15 per cent ... the policies of adult literacy and improved access to schools are significantly more cost-effective methods of raising enrollment rates, with adult literacy providing a slightly cheaper alternative among these two options (Handa 2002, p. 123, 125).

Two recent studies demonstrate the strong effect of women's literacy on daughters' education in particular; Shirley Johnson-Lans and Shweta Kamdar's 2005 study of 951 adult women and 1,000 adolescent girls (10–18 years old) in Rajasthan found that only 15 per cent of women were literate, most from having attended primary school. However, "having a literate mother was associated with a 14 percent increase in the probability that an adolescent girl would be literate" (Johnson-Lans and Kamdar 2005, p. 15). They conclude that:

The empirical analyses reinforce a large number of other studies which find that female literacy has, on balance, positive effects on the health and education levels of both present and future generations of women (*ibid.*, p. 19).

Similarly, Amita Chudgar's 2009 study, also from India, finds a strong relationship between mothers' literacy and daughters' education. Using two large household survey data sets, she found that "marginal improvements in the literacy of household heads are associated with greater gains in children's schooling outcomes than are sizable improvements in the household's economic status" (Chudgar 2009, p. 422). Significantly, she found that the impact of the mother's literacy was more important than the father's literacy on a child's enrolment in and completion of primary school, such that "compared to boys, girls receive an especially high benefit from a marginal improvement in their mother's literacy" (*ibid.*, p. 424). She also found that the probability of girls being educated increases as adult literacy levels in villages rise, which was more important than increasing the number of schools or providing meals (*ibid.*, p. 426), leading her to argue for a greater investment in adult literacy as part of India's pursuit of universal elementary education.

Few empirical studies have investigated women's adult literacy education and actual behavioural changes in sending their children to or supporting them in school. Instead, studies have attempted to gauge changes in women's attitudes after participating in a literacy education programme. Studies typically rely on self-reports from newly-literate women themselves. For example, in a secondary analysis of literacy programme evaluations in Nepal, researchers found that "several of the studies mentioned positive attitudes developed among participants toward sending children, particularly girls, to school" (Comings et al. 1992, p. 224). In a small-scale but in-depth follow-up study of 19 Bangladeshi adults who had participated in an out-of-school literacy project, "mothers use their literacy skills to

help their children with school work... [making it] more likely that children from previously illiterate families will attain literacy through the formal education system" (Cawthera 2003, p. 15). An evaluation of non-formal basic education in Nicaragua analysed development outcomes for almost 5,000 adult literacy participants (half of whom were women) and found that

participants in the second and third year of the programme are significantly more engaged in civic and social groups, dedicate more time assisting their own children with homework, and have higher educational expectations for their own offspring, particularly their daughters, relative to observationally equivalent participants in the first year of the program (Handa et al. 2009, p. 10).

With the per capita expenditure of non-formal education amounting to only half that of formal schools, these researchers argue for investment in non-formal basic education as poverty alleviation and human capital enhancing strategies. A case study evaluation of a non-formal literacy programme in Mali observed that:

literacy class participants explained that belief in the value of education for children was initiated or deepened after discussions held in literacy classes ... many parents now help their children with homework or plan to send all of their children, especially girls, to school in the future (Kante 2005, p. 13).

Shirley Burchfield et al. (2002) conducted a longitudinal study of over 1,000 women in Nepal to determine the social and economic impacts of participation in adult literacy programmes. In relation to girls' education, in particular, interviews with women in the third year of the programme found that "the proportion of women in the experimental group who thought *girls* should go to *secondary* level increased by about 2.2 percentage points in the experimental group and decreased by 2.2 percentage points in the control group" (original italics; *ibid.*, p. 118). Burchfield et al., found that few women, literate or not, were able to help children directly with their schoolwork, although more women who participated in the literacy programme did so:

None of the women in the control group and only 21 women (about 3 per cent of the total experimental group) reported providing this type of assistance in Year 1. By Year 3, the number remained the same in the control group but more than doubled in the experimental group (to 45 women or about 6 % of the total sample) (*ibid.*, p. 122).

We discovered only one study – Shirley Johnson-Lans' 2008 study of women and adolescent girls in Rajasthan – that established a strong link specifically between women's literacy level and delayed marriage for daughters. Girls whose mothers are literate have a significantly lower probability of being betrothed or married off before the age of 18:

The probability that an adolescent girl would be effectively married (gone to live in the home of her husband, rather than just being betrothed but still living with her parents) was reduced by approximately 16 % if her mother was literate. The probability of her being unmarried was increased by 14 % if her mother was literate (Johnson-Lans 2008, p. 16).

Johnson-Lans concludes that “being literate empowers women in intra-family decision making ... [making it] easier for them to limit family size, to provide food and education for daughters, and to allow daughters to grow up before being married off” (ibid., p. 18). However, this study, while supporting the link between mothers’ literacy per se and delayed marriage for daughters, did not differentiate between women who became literate through being schooled as girls and women who became literate as adults.

### **Women’s non-formal literacy education: how might it make a difference to daughters’ age at marriage?**

All of these studies strengthen the argument for keeping girls in school: they are more likely to marry later, and more likely as literate mothers to send their own daughters to school, keep them in school and delay the age at which their daughters marry. This cycle, however, will take several generations to fulfil, and will be negatively influenced by poverty, poor-quality schools, and the slowly changing nature of socio-cultural norms. Mothers – current or potential – can become literate and acquire new knowledge and attitudes without having been to school, through women’s non-formal or out-of-school literacy education programmes. Is this a way to “jump-start” this positive cycle through an intervention with women who are currently mothers, thereby having an effect on the current generation of girls?

Is there evidence to suggest this can happen? We found no study that looked specifically at women who became literate as adults in connection with the timing of daughters’ marriages. The promotion of such research is one of the key purposes of this article. Yet there is empirical evidence demonstrating the relationship between women’s literacy education and benefits to their children. For example, children of non-formally educated women are more likely to go to school and less likely to die in infancy (Lauglo 2001). One contribution of this review, therefore, is to present hypotheses of the various mechanisms that might link women’s non-formal literacy education and daughters’ delayed marriages, including the possible connection between women’s non-formal literacy education and (1) increases in women’s knowledge, particularly health knowledge, and (2) changes in women’s dispositions, including increases in communication skills and ability to participate in or influence family decisions related to children.

Increases in women’s knowledge, particularly health knowledge

Schoolgirls are exposed to the information provided in their textbooks when studying subjects such as history, maths and language. Adolescent girls and women who attend non-formal literacy classes, however, tend to learn non-academic information about a wide variety of functional topics, such as health, family planning, livelihoods, importance of girls’ schooling, and women’s and citizens’ rights, topics that may or may not be included in the curriculum of formal schooling (Comings et al. 1992). This functional knowledge can have an immediate effect on women’s attitudes and beliefs. Lalage Bown (1990), reviewing 43 case studies of

women's literacy projects, concluded that there was a positive effect on health and family planning knowledge and behaviour. Souleymane Kante (2005) documents self-reports from newly-literate women in Nepal about the immunisation, HIV and birth spacing knowledge they gained in literacy classes.

Two studies from Nepal tested women's participation in literacy classes and their increases in knowledge. The five-year longitudinal study of almost 1,000 Nepali women found that "participation in the literacy classes is contributing positively toward increased health knowledge" (Burchfield et al. 2002, p. 64), along with modest gains in literate women's knowledge of political issues. Another study comparing 227 Nepali women who participated in either health education only, literacy education only, integrated health/literacy classes, or in no health or literacy education at all, found that "non-formal education of any kind is effective in helping women acquire some degree of both literacy skills and health knowledge", and that participation in integrated health/literacy courses was related to higher levels of health knowledge than was participation in health only or literacy only non-formal education approaches (Smith 1997, p. v).

These studies strengthen the hypothesis that women's participation in non-formal literacy education can increase women's knowledge, leading to the conclusion that non-formal literacy education classes

... need to incorporate specific materials into the curriculum focusing on the importance of children's education, as well as on ways in which women can become more involved with their children's education. This is particularly important during periods of economic and political instability, when parents are tempted to pull girls out of school to help with household chores or with income-earning activities (Burchfield et al. 2002, p. 122).

### Changes in women's dispositions

Research on women's dispositions has investigated the links between women's literacy and changes in women themselves, such as increased empowerment and influence within the household or improved oral/aural communication skills. The goal of this research has been to understand what the connection is between maternal literacy and reductions in mortality and morbidity among their children.

The literature on women's empowerment strongly hypothesises that participation in adult literacy programmes helps increase women's self-confidence and their ability to "have a voice" in decision making, at least at the family level. For example, in an evaluation study of a literacy programme in Burkina Faso, female participants reported a stronger capacity to persuade their husbands to listen to them in discussions about family affairs (Diagne and Oxenham 2001). Few studies, however, have attempted to measure concrete indicators of empowerment among women who become literate as adults. A World Bank-published review of the research on the benefits of adult literacy programmes from multiple countries concludes that they are "associated with a range of good outcomes, the best documented ones are empowerment and enhanced support for children's education" (Lauglo 2001, p. 22).

The research on maternal literacy is somewhat clearer on the role of literacy as a pathway to children's health, although such research does not always distinguish between schooled and non-schooled literacy. For the purposes of this article, two studies stand out. The first, by Robert Levine and Meredith L. Rowe (2009), analysed data on maternal literacy (as gauged through a direct assessment rather than self-report) and healthcare behaviour from multiple countries (Guatemala, Mexico, Venezuela, Zambia and Nepal). Two findings are of particular interest: (1) that girls' schooling predicts their literacy skills as adult women, despite the varying quality of schooling across these countries, and (2) that literacy, separate from schooling, was significantly correlated with women's comprehension of health messages, women's "ability to formulate an organised health narrative in a clinic-like situation", and women's health knowledge, with exposure to radio as an important factor (Levine and Rowe 2009, p. 345). Their model of the pathway from maternal schooling to child health outcomes provides evidence that literacy skills themselves are a key step in this pathway, and that "a woman's literacy skills mediate the effects of schooling on health care related to infant and child survival" (ibid., p. 347). Important as this evidence may seem as a parallel argument about the link between maternal literacy and delayed marriage for daughters, it is nevertheless still schooled literacy.

However, the second research study helpfully differentiates between venues for literacy acquisition. Peter Sandiford et al. (1995) compared three groups of women in Nicaragua, matched by age and neighbourhood, and with literacy gauged directly through a brief reading test: (1) 1,727 illiterate mothers (with at least one living child), (2) 422 literate mothers who were confirmed to have become literate through the 1980 Nicaraguan Literacy Crusade (an adult education programme),<sup>7</sup> and (3) 733 literate mothers who had acquired literacy at school. Comparing mortality rates and nutritional status of their children, researchers found significant differences between the three groups of women, with illiterate mothers having higher infant mortality rates than adult-educated or schooled literate mothers. In addition, "children of illiterate mothers were about three times as likely to be malnourished as those of mothers in the adult-education group ( $p = .01$ )" and "the children in the adult-education group also enjoyed a 34 per cent lower risk of severe stunting than those of illiterate others" (Sandiford et al. 1995, p. 12). The findings from this study indicate that mothers' non-formal education is intimately connected with child health and survival. It is also significant that there was a higher survival rate for children born to women in the adult education group after the literacy campaign and not before. Although it is unknown to what extent mass education campaigns actually alter attitudes, we can hypothesise that acquiring literacy skills, especially at a later stage in life, may change a woman's perceptions of herself, her abilities and perhaps even her own power. It may actually influence the power that she has in the household to make decisions about her family's health and diet. The findings from this study lead the researchers to conclude that "adult education, and not just

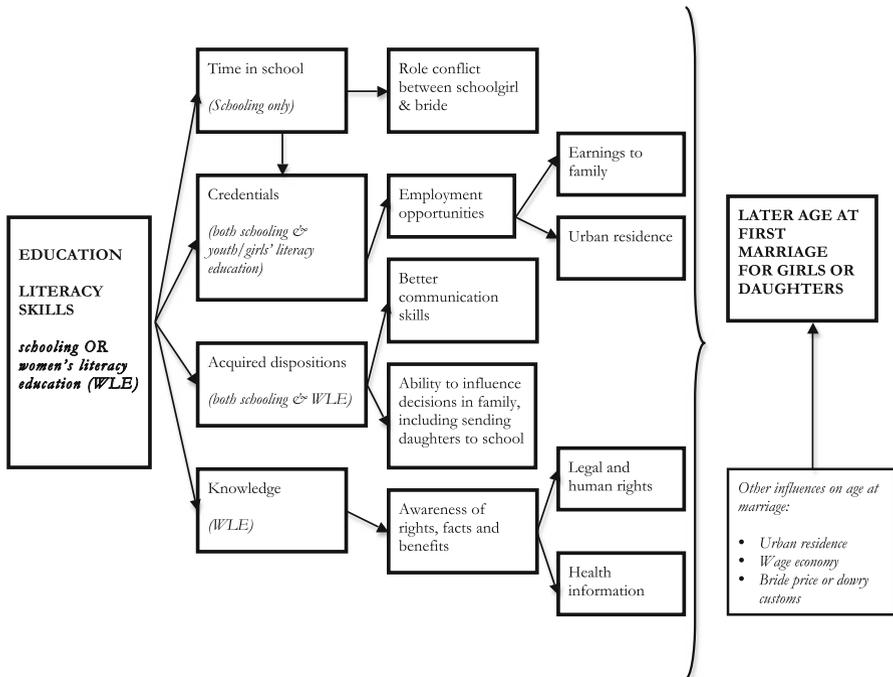
<sup>7</sup> The Nicaraguan Literacy Crusade, often also referred to as the Sandinista Literacy Campaign, was launched in 1980 and ran from March to August of that year in an effort to alleviate illiteracy in Nicaragua. An evaluation of the outcome showed impressive results and in September 1980 the campaign was awarded the UNESCO Literacy Award.

primary schooling, is associated with significant child-health benefits” and then to ask: “Could general adult education of females be more cost-effective than specific health education?” (Sandiford et al. 1995, p. 17).

This question, based on the potential benefits for children whose mothers became literate as adults, can be mirrored in relation to delaying daughters’ marriages: can women’s literacy education, like girls’ schooling, predict later marriages for girls, and by what mechanisms does women’s literacy education bring about such changes?

**Pathways between women’s education and delayed marriage**

In order to conduct the type of research that will help us understand whether and how there is a connection between girls’ schooling and women’s non-formal literacy education and delayed marriage, Fig. 1 presents a model of potential mediating factors between education and delayed marriage for girls, based on the factors discussed above. The difference between this model and others that have been developed about women’s education (Gordon 2011; Moestue 2005; Levine and Rowe 2009) is that it specifically differentiates between education for girls and for women, attempting to describe the pathways unique to educating women as adults.



**Fig. 1** Potential mediating factors between girls’ schooling or women’s literacy education and delayed marriage for girls or daughters

## Conclusion and implications for further research

Existing research supports the argument that girls' schooling is positively related to delayed marriage: the longer girls stay in school, the less likely they are to be married at an early age. In this paper, we have mapped the pathways through which that happens, particularly increased time spent in school, which creates a role conflict when girls can be a student or a bride but not both, and credentials that result from schooling, increasing women's opportunities for wage employment. With much less existing research on the outcomes of women's literacy education out of school (which can include non-formal literacy programmes for adolescent girls as well), it is more difficult to conclude whether and how participation in literacy education might play a role in delaying women participants' daughters' marriages.

However, we have presented several hypothesised mechanisms by which mothers' non-formal literacy education might delay their daughters' marriages, including changes in literate women's communication skills, ability to participate in or influence family decisions, and knowledge about women's legal rights and/or children's health. There may be other mechanisms at play to be illuminated by future research, and clearly, we need research on the relationship between women's literacy education, as adults, and daughters' ages at marriage. Sandiford et al.'s 1995 research in Nicaragua on the importance of maternal literacy for children's health is an excellent model for such research, since it compared illiterate mothers with mothers who were literate as a result of schooling as well as mothers who were literate as result of non-formal adult education. Such research should provide policy makers with information about the relative value of girls' schooling and women's literacy education that could direct more resources to mothers' education as a key contributor to delayed marriage for their daughters and thus completion of secondary school for this and future generations of women.

## References

- Aikman, S., & Unterhalter, S. (Eds.). (2007). *Practising gender equality in education*. Oxford: Oxfam Publications.
- Alene, G. D., & Worku, A. (2008). Differentials of fertility in North and South Gondar zones, northwest Ethiopia: A comparative cross-sectional study. *BMC Public Health*, 8, 397.
- Anderson, S. (2007). Why the marriage squeeze cannot cause dowry inflation. *Journal of Economic Theory*, 137, 140–152.
- Bassi, L. J. (1999). Are employers' recruitment strategies changing? Competence over credentials. In N. G. Stacey (Ed.), *Competence without credentials* (pp. 13–27). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- Boserup, E. (1970). *Women's role in economic development*. London: Earthscan.
- Bown, L. (1990). *Preparing the future: Women, literacy and development – the impact of female literacy on human development and the participation of literate women in change*. London: Action Aid.
- Burchfield, S., Hua, H., Baral, D., & Rocha, V. (2002). *A longitudinal study of the effect of integrated literacy and basic education programs on women's participation in social and economic development in Nepal*. Boston: World Education. Accessed 4 March 2009 from [http://www.worlded.org/docs/Publications/asia/nepal/nepal\\_12\\_19\\_02.pdf](http://www.worlded.org/docs/Publications/asia/nepal/nepal_12_19_02.pdf).

- Castro Martin, T., & Juarez, F. (1995). The impact of women's education on fertility in Latin America: Searching for explanations. *International Family Planning Perspectives*, 21(2), 52–57.
- Cawthera, A. (2003). Nijera Shikhi and adult literacy: Impact on learners after five years. Accessed from Eldis.org on 14 February 2010 from <http://www.eldis.org/vfile/upload/1/document/0708/DOC11976.pdf>.
- Chudgar, A. (2009). The challenge of universal elementary education in rural India: Can adult literacy play a role? *Comparative Education Review*, 53(3), 403–433.
- Comings, J., Shrestha, C., & Smith, C. (1992). A secondary analysis of a Nepalese national literacy program. *Comparative Education Review*, 36(2), 212–226.
- Dasgupta, I., & Mukherjee, D. (2003). "Arranged" marriage, dowry and female literacy in a transitional society. CREDIT Research Paper. Centre for Research in Economic Development and International Trade, University of Nottingham. Accessed 14 June 2009 from <http://driver-support.eu/economics/credit/research/papers/CP.03.12.pdf>.
- De Coulon, A., Meschi, E., & Vignoles, A. (2008). *Parents' basic skills and their children's test scores*. London: National Research and Development Centre, Institute of Education.
- Diagne, M., & Oxenham, J. (2001). Synthesis of the evaluations of 27 programs in adult basic education. In *BELOISYA: Proceedings of a workshop*, Chad, March 1999. Washington: World Bank.
- Field, E., & Ambrus, A. (2008). Early marriage, age of menarche, and female schooling attainment in Bangladesh. *Journal of Political Economy*, 116(5), 881–930.
- Gordon, C. (2011). Women's education and modern contraceptive use in Ethiopia. *International Journal of Education*, 3(1), 9.
- Grown, C., Gupta, G. R., & Kes, A. (2008). *Seven priorities, seven years to go: Progress on achieving gender equality*. Washington, DC: International Center for Research on Women.
- Gupta, S. D., Mukherjee, S., Singh, S., Pande, R., & Basu, S. (2008). *Knot ready: Lessons from India on delaying marriage for girls*. Washington, DC: International Center for Research on Women.
- Handa, S. (2002). Raising primary school enrolment in developing countries: The relative importance of supply and demand. *Journal of Development Economics*, 69(1), 103–128.
- Handa, S., Pineda, H., Esquivel, Y., Lopez, B., Gurdian, N. V., & Regalia, F. (2009). Non-formal basic education as a development priority: Evidence from Nicaragua. *Economics of Education Review*, 28(4), 512–522.
- Harrell, S., & Dickey, S. (1985). Dowry systems in complex societies. *Ethnology*, 24(2), 105–120.
- Herz, B., & Sperling, G. (2004). *What works in girls' education: Evidence and policies from the developing world*. New York: Council on Foreign Relations. Accessed 13 February 2010 from [http://www.ungei.org/resources/files/councilforaff\\_Girls\\_Education\\_full.pdf](http://www.ungei.org/resources/files/councilforaff_Girls_Education_full.pdf).
- ICDDR, B (International Centre for Diarrhoeal Disease Research, Bangladesh) (2007). Consequences of early marriage on female schooling in rural Bangladesh. *ICDDR, B Health and Science Bulletin*, 5(4), 13–18.
- Ikamari, L. (2005). The effect of education on the timing of marriage in Kenya. *Demographic Research*, 12(1), 1–28.
- Jain, S., & Kurz, K. (2007). *New insights on preventing child marriage: A global analysis of factors and programs*. Washington, DC: International Centre for Research on Women.
- Jejeebhoy, S. (1995). *Women's education, autonomy and reproductive behaviour: Experience from developing countries*. Oxford: Clarendon Press.
- Jejeebhoy, S. J., & Halli, S. S. (2006). Marriage patterns in rural India: Influence of sociocultural context. In C. B. Lloyd, J. R. Behrman, N. P. Stromquist, & B. Cohen (Eds.), *The changing transitions to adulthood in developing countries* (pp. 172–199). Washington, DC: The National Academies Press.
- Jensen, R., & Thornton, R. (2003). Early female marriage in the developing world. *Gender and Development*, 11(2), 9–19.
- Johnson-Lans, S. (2008). Do NGOs make a difference: A case study of rural Rajasthan. Vassar College Economics Working Paper #93, Poughkeepsie, NY. Accessed 12 February 2010 from <http://irving.vassar.edu/VCEWP/VCEWP93.pdf>.
- Johnson-Lans, S., & Kamdar, S. (2005). Effects of female literacy in villages in rural Rajasthan. Vassar College Economics Working Paper #76, Poughkeepsie, NY. Accessed 12 February 2010 from <http://irving.vassar.edu/VCEWP/VCEWP76.pdf>.
- Kante, S. (2005). *Formal and nonformal education: Exploiting the synergy between them for the benefit of both*. Boston: World Education.
- Lauglo, J. (2001). *Engaging with adults: The case for increased support to adult basic education in sub-Saharan Africa*. Washington, DC: The World Bank.

- Levine, R., & Rowe, M. L. (2009). Maternal literacy and child health in less-developed countries: Evidence, processes and limitations. *Journal of Developmental and Behavioral Pediatrics, 30*(3), 340–349.
- Lloyd, C., with Young, J. (2009). *New lessons: The power of educating adolescent girls*. New York City: The Population Council.
- Malhotra, A. (1997). Gender and the timing of marriage: Rural–urban differences in Java. *Journal of Marriage and the Family, 59*(2), 434–450.
- Mathur, S., Greene, M., & Malhotra, A. (2003). *Too young to wed: The lives, rights and health of young married girls*. Washington, DC: International Center for Research on Women.
- Mensch, B., Singh, S., & Casterline, J. B. (2006). Trends in the timing of first marriage among men and women in the developing world. In C. B. Lloyd, J. R. Behrman, N. P. Stromquist, & B. Cohen (Eds.), *The changing transitions to adulthood in developing countries* (pp. 118–171). Washington, DC: The National Academies Press.
- Moestue, H. (2005). *Adult education and child nutrition in India and Vietnam: The role of family, neighbours and friends*. Doctoral dissertation. Accessed 22 June 2011 from Young Lives project: <http://www.younglives.org.uk/files/student-papers/adult-education-and-child-nutrition-in-india-and-vietnam-the-role-of-family-neighbours-and-friends>.
- Morrison, A., & Sabarwal, S. (2008). *The economic participation of adolescent girls and young women: Why does it matter?* Washington, DC: The World Bank, The Adolescent Girls Initiative. Accessed 15 February 2010 from <http://siteresources.worldbank.org/INTGENDER/Resources/PolicyNoteRevised.pdf>.
- NRC & IOM (The National Research Council & Institute of Medicine) (2005). In C. B. Lloyd (Ed.), *Growing up global: The changing transitions to adulthood in developing countries*. Committee on Population and Board on Children, Youth and Families, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.
- Otoo-Oyortey, N., & Pobi, S. (2003). *Early marriage and poverty: Exploring links for policy and programme development*. London: The Forum on Marriage and the Rights of Women and Girls in collaboration with the International Planned Parenthood Federation.
- Population Council (2010). Youth/transitions to adulthood, child marriage. Accessed 1 December 2010 from [http://www.popcouncil.org/topics/youth\\_childmarriage.asp](http://www.popcouncil.org/topics/youth_childmarriage.asp).
- Rao, V. (1993). Dowry “inflation” in rural India: A statistical investigation. *Population Studies, 47*(2), 283–293.
- Rihani, M. (2006). *Keeping the promise: Five benefits of girls’ secondary education*. Washington, DC: Academy for Educational Development.
- Rogers, A. (2004). *Non-formal education: Flexible schooling or participatory education?*. Hong Kong: Comparative Education Research Centre, University of Hong Kong.
- Sandiford, P., Cassell, J., Montegro, M., & Sanchez, G. (1995). The impact of women’s literacy on child health and its interaction with access to health services. *Population Studies, 49*(1), 5–17.
- Sastry, N., & Pebley, A. R. (2010). Family and neighborhood sources of socioeconomic inequality in children’s achievement. *Demography, 47*(3), 777–800.
- Singh, S., & Samara, R. (1996). Early marriage among women in developing countries. *International Family Planning Perspectives, 22*(4), 148–157. 175.
- Smith, C. (1997). *Women’s acquisition of literacy skills and health knowledge in Nepal: A comparative study of nonformal education approaches*. Electronic Doctoral Dissertations for UMass Amherst. Accessed 12 September 2010 from <http://scholarworks.umass.edu/dissertations/AA19721492>.
- Srinivasan, P., & Lee, G. (2004). The dowry system in northern India: Women’s attitudes and social change. *Journal of Marriage and Family, 66*(5), 1108–1117.
- Tambiah, S., Goheen, M., Gottlieb, A., Guyer, J. L., Olson, E. A., Piot, C., et al. (1989). Bridewealth and dowry revisited: The position of women in Sub-Saharan Africa and North India [and comments and reply]. *Current Anthropology, 30*(4), 413–435.
- Teays, W. (1991). The burning bride: The dowry problem in India. *Journal of Feminist Studies in Religion, 7*(2), 29–52.
- UN (United Nations) (1989). *Convention on the rights of the child*. United Nations treaty series (Vol. 1577, p. 3). New York: UN General Assembly. Accessed 1 October 2010 from [http://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg\\_no=IV-11&chapter=4&lang=en](http://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-11&chapter=4&lang=en).
- UN (United Nations) (1995). *Women’s education and fertility behavior*. New York: United Nations.
- UN DESA (United Nations Department of Economic and Social Affairs) (1997). *Linkages between population and education: A technical support services report*. New York: UN Department of

- Economic and Social Affairs Population Division. Accessed 29 June 2009 from [www.un.org/esa/population/pubsarchive/tsspoptss976/gbc976.htm](http://www.un.org/esa/population/pubsarchive/tsspoptss976/gbc976.htm).
- UNESCO (United Nations Education, Science and Cultural Organization) (2006). *Literacy for life: EFA global monitoring report 2006*. Paris: UNESCO.
- UNFPA (United Nations Population Fund) (2003). *Annual report*. New York: UNFPA. Accessed 29 June 2009 from <http://unfpa.org/public/home/publications/pid/2124>.
- UNICEF (United Nations Children's Fund) (1994). *Too old for toys, too young for motherhood*. New York: UNICEF.
- UNICEF (United Nations Children's Fund) (2001). *Early marriage: Child spouses. Innocenti Digest no. 7*. Florence: UNICEF Innocenti Research Centre, 28 p.
- UNICEF (United Nations Children's Fund) (2005). *Early marriage: A harmful traditional practice (a statistical exploration)*. New York: UNICEF. Accessed 25 June 2009 from [http://www.unicef.org/publications/files/Early\\_Marriage\\_12.lo.pdf](http://www.unicef.org/publications/files/Early_Marriage_12.lo.pdf).
- UNICEF (United Nations Children's Fund) (2010). *Progress for children: Achieving the MDG's with equity*. New York: UNICEF. Accessed 20 June 2009 from [http://www.unicef.org/publications/index\\_55740.html](http://www.unicef.org/publications/index_55740.html).
- Wrigley, J. (Ed.). (1992). *Education and gender equality*. London: Falmer Press.
- Yabiku, S. (2004). Marriage timing in Nepal: Organizational effects and individual mechanisms. *Social Forces*, 83(2), 559–586.

## The authors

**Cristine A. Smith**, Ed.D., is an Associate Professor at the Center for International Education, University of Massachusetts, Amherst. Over her career, she has directed literacy education and research projects in the U.S., South Asia, Africa and the Middle East. Her research interests include girls' and women's literacy education, adult basic education, students' transition to college, teacher quality and professional development, and outcomes of women's literacy.

**Rebecca Paulson Stone**, Ed.D., is an international curriculum, training and literacy specialist with nine years' experience of creating and facilitating materials development, designing and delivering teacher training, and conducting research and evaluations in Brazil, Ethiopia, Senegal, the Gambia, Mali, Benin, Niger and the Philippines. Her most recent research examines the effects of participatory teacher training on bilingual teacher attitudes and practices in a marginalised region of the Philippines. Her research interests include mother tongue literacy instruction in primary grades and teacher professional development.

**Sarah Kahando** is an Ed.D. candidate at the Center for International Education, University of Massachusetts, Amherst. Her research interests include the social practices of literacy, adult literacy in emergency settings and women's literacy and leadership in Kenya, and she has worked extensively on literacy and education programmes in Sudan.