

## Research Article

# Current Opinion in Gynecology and Obstetrics

## A Pilot Study of Family Planning Perspectives and Practices among Syrian Child Brides in Lebanon

Han A<sup>1</sup>, Michael S<sup>2</sup>, Helal S<sup>3</sup>, Bakhache N<sup>4</sup>, Bunting A<sup>5</sup>, Davison C<sup>4</sup> and Bartels SA<sup>4,6\*</sup>

<sup>1</sup>Department of Obstetrics and Gynecology, Harvard Medical School, Boston, Massachusetts, USA

<sup>2</sup>ABAAD Resource Centre for Gender Equality, Beirut, Lebanon

<sup>3</sup>School of Medicine, Queen's University, Kingston, Canada

<sup>4</sup>Department of Public Health Sciences, Queen's University, Kingston, Canada

<sup>5</sup>Department of Social Science, York University, Toronto, Ontario, Canada

<sup>6</sup>Department of Emergency Medicine, Queen's University, Kingston, Canada

\***Correspondence:** Susan A Bartels, Department of Emergency Medicine, Queen's University, 76 Stuart Street, Empire 3, Kingston, Ontario, K7L 4V7, Canada, E-mail: susanabartels@gmail.com

Received date: March 14, 2019; Accepted date: April 18, 2019; Published date: April 23, 2019

### Abstract

Child marriage is associated with adolescent pregnancy, which increases maternal and child health risks and rates of child marriage have increased among families affected by the Syrian conflict. Although contraception reduces these risks, data about contraception practices among Syrian child brides is sparse. This cross-sectional, descriptive pilot study examined contraceptive knowledge, attitudes, barriers, needs and practices among young Syrian brides. A convenience sample of female Syrian refugees aged 13-25 who had married before the age of 18 was recruited through a civil society organization in Lebanon. Among the 32 participants, there were significant knowledge gaps and negative attitudes towards contraception, with approximately one-fifth of participants (18.8%) unaware of contraceptive methods and 84.4% unaware of emergency contraception. Negative attitudes towards contraception were common, including beliefs that it was physically harmful (47.0%), contradicted religious views (43.8%), and lacked support by husbands (50%). The majority of participants (53.1%) had never used contraception with the most common reason being fear of side effects (47%). Approximately one-third (30%) of participants with two or more children reported sub-optimal birth spacing of less than a year and almost one-quarter of participants (24.1%) reported a history of terminating a pregnancy. Notably, one-fifth of participants (20.8%) had an unmet need for contraception, and unwanted pregnancies were common among women who were currently (42.9%) or previously (48.1%) pregnant. Results from this small convenience sample of Syrian child brides in Lebanon identify an urgent need to further explore contraception use among this population and to inform interventions for increased contraception usage to decrease adolescent pregnancies and improve maternal and child health.

**Keywords:** Child brides, Contraception, Family planning, Lebanon, Refugee, Syrian

**Abbreviations:** CI: Coitus Interruptus; IUD: Intrauterine Device; LAM: Lactational Amenorrhea

### Introduction

Child marriage, defined as marriage before the age of 18 [1] is a pervasive form of gender-based violence associated with substantial maternal and child morbidity

and mortality. It violates the Universal Declaration of Human Rights [2], as well as Conventions on the rights of Women [3] and Children [4]. More than 100 million girls are expected to be married over the next decade [5], with particular vulnerability during periods of armed

conflict and displacement [6-8]. During the Syrian crisis, child marriage rates have dramatically increased [9] as a negative coping strategy to address economic needs and concerns about girls' safety. For instance, in 2017 approximately 35% of Syrian refugee girls in Lebanon were reportedly married before the age of 18 in comparison to 13% of girls marrying before the age of 18 in 2006 [10].

Child marriage is associated with adolescent pregnancy and substantial health risks [11]. In low and middle-income countries, complications of pregnancy and childbirth are leading causes of death among women and girls 15-19 years old, and mortality rates are 73% higher for infants born to mothers less than age 20 compared to those over age 20 [12]. Family planning to postpone first births to later maternal age is a cost effective strategy to greatly mitigate these risks [11], however, data on family planning among Syrian child brides is lacking.

This pilot study identifies knowledge, attitudes, needs, barriers and practices around contraception among Syrian child brides in Lebanon. This data is important for informing programming and services to better meet the family planning needs of young brides and to prevent high risk pregnancies and deliveries.

## Methods

This cross-sectional, descriptive pilot study examined family planning among Syrian child brides in three Lebanese regions: Beqaa, Tripoli and Beirut.

Female Syrian refugees aged 13-25 who had married before the age of 18 were recruited with convenience sampling between January 23 and February 10, 2017. The ABAAD Resource Center for Gender Equality (a civil association in Lebanon) invited eligible females in their community programs to participate in the survey. Although ABAAD gives sporadic sessions on reproductive health, there were no systematic interventions during or just prior to the data collection.

The questionnaire consisted of 34 questions divided into six sections (demographics, knowledge about contraception, family planning preferences, obstetrical history, attitudes towards contraception, and barriers to accessing family planning services). It was written in English, translated into the Syrian dialect of Arabic and back translated into English to check for accuracy. A third translator helped resolve translation discrepancies.

Trained research assistants delivered the survey using the Quick Tap Survey application on iPad Mini 4's.

Quick Tap Survey allowed data to be collected without an internet connection and uploaded to a secure server once a connection became available.

Informed consent was obtained in Arabic and was indicated by checking a box on the tablet. Since the study involved minimal risk, written consent was waived. Participants as young as age 13 were recruited without parental consent since the girls were emancipated through marriage and/or motherhood. Confidentiality was maintained through privacy during survey completion (important for verbalization of any sensitive information) and by not recording identifying information. Given that interviews were brief (approximately 15 minutes) and that participants were interviewed in their natural settings without having to travel, no monetary or other compensation was offered.

Data were exported from the Quick Tap Survey application using Microsoft Excel and imported into SPSS (IBM SPSS Statistics 24.0.0.0) for descriptive analyses.

## Results

Thirty-nine participants were recruited. Five had never been married and two were older than age 18 when they married. Excluding these seven participants yielded a sample size of 32. Table 1 presents participant demographics.

**Table 1:** Demographic characteristics of participants.

	n (%)
Mean age (n=32) [range]	21 [13-27]
Highest level of formal education (n=32)	
None	3 (9.4)
Up to primary school	10 (31.3)
Up to middle school	14 (43.8)
Up to high school	4 (12.5)
Some university	1 (3.1)
Mean age at time of marriage (n=31) [range]	15 [12-18]
Husband's highest level of formal education (n=32)	
None	1 (3.1)
Up to primary school	12 (37.5)
Up to middle school	13 (40.6)
Up to high school	5 (15.6)
Completed university	1 (3.1)

Table 2 summarizes participant family planning knowledge, practices, and attitudes. Over half of

participants had never used any contraception (53.1%), with fear of side effects being the most common explanation (47%). Almost one in five had no knowledge of contraception (18.8%), 84.4% had no knowledge of emergency contraception, and almost one-third had suboptimal birth spacing (30%).

The main barriers to contraception use are presented in Table 3 including negative attitudes and misconceptions about family planning. Almost half the participants (47%) feared that contraception would cause bodily harm and many believed that contraception contradicted their religious views (43.8%). A majority reported that their husbands were decision makers about contraception use in the family (90.6%) and half of the participants reported that their husbands would not support contraception use.

Findings on unmet need for contraception are summarized in Table 4. Unwanted pregnancies were common: 48.1% reported a previous unwanted pregnancy and 42.9% of currently pregnant participants reported that the pregnancy was unwanted. Notably, approximately one quarter of participants (24.1%) reported that they had previously terminated a pregnancy. Moreover, one in five participants (20.8%) reported an unmet need for contraception, and 100% of this subgroup reported husbands opposing contraception use.

## Discussion

To our knowledge, this study is the first published work to examine family planning perspectives and practices among Syrian child brides in Lebanon.

Our findings support literature reporting that early marriage is associated with lower likelihood of contraceptive use to delay first pregnancy [13], no contraception in early marriage [14] and lack of access to contraceptive methods in emergencies [15,16]. These factors likely contribute to high pregnancy rates among child brides. In Lebanon, 61% of Syrian child brides aged 15-17 report having had at least one pregnancy [17].

Adolescent pregnancy is a concern because it poses significant maternal and child health risks. In low and middle-income countries, complications of pregnancy and childbirth are leading causes of death among women 15-19 years old. While births by adolescents account for 11% of all births worldwide, they account for 23% of the overall burden of disease from pregnancy and childbirth among women of all ages [18]. The mortality rates are

73% higher for infants born to mothers less than 20 years of age than for those born to older mothers [19] with continued poorer survival prospects for the first five years of life. Several factors contribute to these adverse outcomes among child brides compared with women who marry at older ages, including physiological, social and emotional immaturity. Family planning to postpone first births to a later maternal age is a cost effective strategy [20] to greatly improve maternal health and reduce maternal and child mortality.

Addressing unmet contraception needs globally could prevent 52 million unwanted pregnancies and 22 million induced abortions [21]. The literature reports that many adolescents hold misconceptions about contraception [22]. Fear and misconceptions have also been reported as barriers to family planning in other Middle Eastern countries. For example, in the Maghreb, women feared IUDs would penetrate their hearts or make them permanently sterile [23]. In Turkey, women avoided contraception for fear of health problems [24]. More research is needed to understand fears around contraception use among Syrian child brides and to determine whether these fears hinder contraception initiation. Counseling on side effects and benefits have increased contraception usage and reduced unintended pregnancy among adolescents in other settings [22-26], and is therefore a potential point of intervention.

Previous studies report that many adolescents do not know how to obtain or use contraception [15]. Furthermore, the Syrian crisis has left approximately 42,000 girls without adequate sexual and reproductive health information [9]. Our findings support a lack of knowledge about contraceptive methods and emergency contraception among this population, and identify several questions warranting further study, such as whether emergency contraception is considered abortion in this context.

Sub-optimal birth spacing (less than 24 months [27]) was highly prevalent in the current study, corroborating recognition of postpartum women as an important subgroup with unmet need for contraception [28]. Raising awareness about the risks of suboptimal birth spacing and encouraging use of contraception to increase birth spacing is another potential intervention to improve maternal and child health outcomes.

Although abortion is illegal in Lebanon, our results show that females are finding means to terminate

**Table 2:** Family planning knowledge and practices.

	<b>n (%)</b>
Heard about family planning in past (n=32)	
Yes	26 (81.3)
No	6 (18.8)
Contraception methods known to participant (n=26)*	
Pills	24 (92.3)
Intrauterine device (IUD)	13 (50.0)
Male condoms	10 (38.5)
Coitus interruptus (CI)	7 (26.9)
Lactational amenorrhoea (LAM) method	5 (19.2)
Rhythm method	5 (19.2)
Female condoms	5 (19.2)
Injections	3 (11.5)
Prefer not to say	1 (3.8)
Aware of emergency contraception (n=32)	
Yes	4 (12.5)
No	27 (84.4)
Prefer not to say	1 (3.1)
Source of information about sex and contraception? (n=32)*	
Family (mother-in law, mother)	13 (40.6)
Neighbours (including “women around me” and “people around me”)	8 (25.0)
Doctor/Pharmacist	4 (12.5)
Friends	3 (9.4)
Media/ Television / Internet	3 (9.4)
Community (school, family planning organization)	2 (6.3)
Nowhere / I have no access	2 (6.3)
Ever terminated a pregnancy? (n=29)	
Yes	7 (24.1)
No	21 (65.6)
Desire to get pregnant at time of interview? (n=32)	
Yes	6 (18.8)
No	24 (75.0)
Prefer not to say	2 (6.3)
Participant or partner currently using contraception? (n=32)	
Yes	19 (59.4)
No	13 (40.6)
Contraception use in the past? (n=32)	
Yes	15 (46.9)
No	17 (53.1)
If yes, which method (n=15)*	
Pills	11 (73.3)
Male condom	2 (13.3)
CI	2 (13.3)
Female condom	1 (6.7)
LAM	1 (6.7)
Injections	1 (6.7)
Rhythm method	1 (6.7)

\*participants could choose more than 1 response.

**Table 3:** Barriers to contraception use.

	n (%)
Reason for not using contraception? (n= 17)	
Fear (side effects, health, infectious diseases, causes damages,harmful)	8 (47.0)
I want to have children / in Syria number of children isn't a problem	5 (29.4)
My husband desires children	2 (11.8)
I do not want to	1 (5.9)
I do not know about contraceptive methods	1 (5.9)
Birth Spacing: If > 2 children shortest interval between 2 births? (n=23)	
< 1 year	7 (30.4)
1-2 years	13 (56.5)
> 2 years	3 (13.0)
Contraception contradicts religious views? (n = 32)	
Yes	14 (43.8)
No	9 (28.1)
I do not know	9 (28.1)
Contraception contradicts social norms within the family/community (n = 32)	
Yes	10 (31.3)
No	17 (53.1)
I do not know	5 (15.6)
Husband supports using contraception? (n=32)	
Yes	13 (40.6)
No	16 (50.0)
I do not know	2 (6.3)
Prefer not to answer	1 (3.1)
Decision maker about contraception use? (n=32)*	
Husband	29 (90.6)
Myself	28 (87.5)
Mother	3 (9.4)
Mother-in-law	3 (9.4)
Prefer not to answer	1 (3.1)
Ideal time interval between marriage and having first child? (n=32)	
< 1 year	7 (21.9)
1-2 years	16 (50.0)
3-4 years	5 (15.6)
5+ years	1 (3.1%)
Prefer not to answer	3 (9.4)

\*participants could choose more than 1 response.

unplanned pregnancies. More research is needed to better understand the perceived safety and risks of abortions, the relative risks of abortions in comparison to contraception, as well as the means, location, complications and follow-up care of accessed abortions.

Our study found a lack of support for contraception by husbands. This is problematic since married Syrian

women without children cannot use contraceptives without spousal approval [21]. Female contraceptive use has been positively associated with male spousal support [22] and male awareness of modern contraceptives [23]. These findings highlight the urgent need for more research on male influences on contraception decision making, and to address their misperceptions through contraception programming.

**Table 4:** Unmet need for family planning

	n (%)
Contraception use among couples not attempting to conceive at time of interview (n=24)	
Yes	19 (79.1)
No	5 (20.8)
Among those with unmet need (n=5), history of previously terminated pregnancies (n=4)	
Yes	3 (75.0)
No	1 (25.0)
Among those with unmet need (n=5), perceptions about contraception being physically harmful or helpful (n=5)	
Hurt	4 (80.0)
Neither	1 (20.0)
Among those with unmet need (n=5), perception that contraception contradicted religious views (n=5)	
Yes	4 (80.0)
I don't know	1 (20.0)
Among those with unmet need (n=5), perception that contraception contradicted social norms (n=5)	
Yes	4 (80.0)
No	1 (20.0)
Among those with unmet need (n=5), husbands supportive of contraception use (n=5)	
No	5 (100)
Yes	0 (0)
Among participants pregnant at time of interview, current pregnancy wanted (n=7)	
Yes	4 (57.1)
No	3 (42.9)
Previous unwanted pregnancies (n=27)	
Yes	13 (48.1)
No	14 (51.9)

This study has several limitations. First, convenience sampling renders our results ungeneralizable to other child brides in Lebanon or elsewhere. Recruitment through a service provider may have introduced selection bias; women who are not accessing local services and programs may have even higher unmet needs for contraception. Secondly, the sample size was small. It proved very difficult to recruit married young girls since they tend to stay at home tending to household and childcare duties [13]. Finally, the survey did not include

Cur Op Gyn Obs, 2(1): 208-215 (2019)

in-depth questions about abortion, perceptions on side effects of and potential harms from contraception, and reasons for unmet need. Greater in-depth exploration, perhaps through qualitative interviews, would better elucidate barriers and facilitators for contraception uptake. However, given the challenges associated with reaching child brides for research interviews in Lebanon and the lack of existing data on family planning among child brides, this pilot study provides new insights useful for planning future research and for informing educational interventions.

## Conclusions

Among this convenience sample of Syrian child brides in Lebanon, there were low levels of use and knowledge about contraception. Conversely, negative attitudes about contraception, unmet need for contraception and lack of male support for contraception were highly prevalent. There is urgent need to further explore barriers and facilitators to contraception use and safe abortion care among this population, and to implement programming to improve knowledge and use of emergency contraception, decrease unmet contraception need, encourage greater birth spacing, and increase male support for contraception use.

## Declarations

### Ethics approval and consent to participate

Study protocol was approved by the Queen's University Health Sciences Research Ethics Board. All participants gave informed consent prior to completing the survey.

### Consent for publication

Authors give their consent for publication in Current Opinions in Gynecology and Obstetrics

### Availability of data and material

Available upon request to corresponding author

### Competing interests

None of the authors have any competing interests to declare

### Funding

This work was supported by the World Bank Group and the Sexual Violence Research Initiative (SVRI) through the Development Marketplace Innovation for the Prevention of Gender-Based Violence (PI-Dr. Susan Bartels).

## Authors' contributions

All authors contributed to the planning and design of the study. AH conducted a literature review. The survey was designed by AH with input by SM, CD, SH and SB. SH assisted with translation and programming of the survey. AH drafted the initial manuscript and all authors contributed to the writing.

## Acknowledgements

We would like to thank the Sexual Violence Research Initiative and the World Bank Group for their financial support of this work and are indebted to the research participants who shared their perspectives and opinions. We are also grateful to Ms. Ghida Anani and team members from the ABAAD Resource Center for Gender Equality in addition to the ABBAD team leads: Katia Ghandoura, Clara El Warrak, and Salma Atwi for their dedication and hard work.

## References

1. United Nations Children's Fund. Child marriage: Child protection from violence, exploitation and abuse. 2016. <https://www.unicef.org/protection/harmful-practices>.
2. United Nations General Assembly. Universal declaration of human rights. Paris, France: United Nations. 1948. <https://www.un.org/en/universal-declaration-human-rights/>.
3. United Nations General Assembly. Convention on the elimination of all forms of discrimination against women. 1979. <https://www.un.org/womenwatch/daw/cedaw/>.
4. United Nations General Assembly. Convention on the rights of the child. 1989. <https://www.ohchr.org/en/professionalinterest/pages/crc.aspx>.
5. Erulkar A, Muthengi E, Chau M, et al. Adolescence lost: The realities of child marriage. *J Adolesc Health*. 2013;52(5):513-514. Doi: <https://doi.org/10.1016/j.jadohealth.2013.03.004>
6. United Nations High Commissioner for Refugees. Driven by desperation transactional sex as a survival strategy in Port-au-Prince IDP Camps. 2011. [http://www.urd.org/IMG/pdf/SGBV-UNHCR-report2\\_FINAL.pdf](http://www.urd.org/IMG/pdf/SGBV-UNHCR-report2_FINAL.pdf).
7. Paik K. The path to hope: Congolese refugee adolescent girls in Nyarugusu Refugee Camp, Tanzania. Women's Refugee Commission. 2012. <https://www.womensrefugeecommission.org/resources/document/868-the-path-to-hope-congolese-refugee-adolescent-girls-in-nyarugusu-refugee-camp-tanzania>.
8. Schult J, Rizivi Z. In search of safety and solutions : Somali refugee adolescent girls at Sheder and Aw Barre Camps, Ethiopia. Women's Refugee Commission. 2012. <http://violence-wash.lboro.ac.uk/vgw/Supporting-documents/VGW-4-Good-practice-Safety-Audits/TS4-C-2-B-WRC-Insearch-of-safety-solutions-Ethiopia-2012.pdf>.
9. Sahbani S, Al-Khateeb M, Hikmat R. Early marriage and pregnancy among Syrian adolescent girls in Jordan; Do they have a choice? *Pathog Glob Health*. 2016;110(6):217-218. Doi: <https://doi.org/10.1080/20477724.2016.1231834>
10. UNFPA. New study finds child marriage rising among most vulnerable Syrian refugees. 2017. <https://www.un.org/youthenvoy/2017/02/new-study-finds-child-marriage-rising-among-vulnerable-syrian-refugees/>.
11. Cleland J. Contraception in historical and global perspective. *Best Pract Res Clin Obstet Gynaecol*. 2009;23(2):165-176. Doi: <https://doi.org/10.1016/j.bpobgyn.2008.11.002>
12. Adhikari R. Early marriage and childbearing: Risks and consequences. 2003:62-66. <https://www.poline.org/node/233254>
13. Santhya KG, Ram U, Acharya R, et al. Associations between early marriage and young women's marital and reproductive health outcomes: Evidence from India. *Int Perspect Sex Reprod Health*. 2010;36(03):132-139. Doi: <https://doi.org/10.1363/3613210>
14. Raj A. When the mother is a child: The impact of child marriage on the health and human rights of girls. *Arch Dis Child*. 2010;95(11):931-935. Doi: <https://doi.org/10.1136/adc.2009.178707>
15. Too young to wed: The growing problem of child marriage among Syrian girls in Jordan. London, UK. Save the Children. 2014. [http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/TOO\\_YOUNG\\_TO\\_WED\\_REPORT\\_0714.PDF](http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/TOO_YOUNG_TO_WED_REPORT_0714.PDF).
16. Krause SK, Jones RK, Purdin SJ. Programmatic responses to refugees' reproductive health needs. *Int Fam Plan Perspect*. 2000;26(4):181-187. Doi: <https://doi.org/10.2307/2648256>
17. New study finds child marriage rising among most vulnerable Syrian refugees. The 2016 Bekaa Study Lebanon. United Nations Population Fund. 2017. <https://www.unfpa.org/news/new-study-finds-child-marriage-rising-among-most-vulnerable-syrian-refugees>



marriage-rising-among-most-vulnerable-syrian-refugees.

18. Patton GC, Coffey C, Sawyer SM, et al. Global patterns of mortality in young people: A systematic analysis of population health data. *Lancet*. 2009;374(9693):881-892. Doi: [https://doi.org/10.1016/S0140-6736\(09\)60741-8](https://doi.org/10.1016/S0140-6736(09)60741-8)
19. Adhikari RK. Early marriage and childbearing: Risks and consequences. Geneva Switzerland World Health Organization. 2003:62-66. <http://www.popline.org/node/233254>
20. Cleland J. Contraception in historical and global perspective. *Best Pract Res Clin Obstet Gynaecol*. 2009;23(2):165-176. Doi: <https://doi.org/10.1016/j.bpobgyn.2008.11.002>
21. Motlaq ME, Eslami M, Yazdanpanah M, et al. Contraceptive use and unmet need for family planning in Iran. *Int J Gynecol Obstet*. 2013;121(2):157-161. Doi: <https://doi.org/10.1016/j.ijgo.2012.11.024>
22. Chandra-Mouli V, Camacho AV, Michaud PA. WHO Guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. *J Adolesc Heal*. 2013;52(5):517-522. Doi: <https://doi.org/10.1016/j.jadohealth.2013.03.002>
23. Bowen DL. Attitudes toward family and family planning in the pre-Saharan Maghreb. *Maghreb Rev*. 1985;8(1-2):8-17. <http://www.ncbi.nlm.nih.gov/pubmed/12266482>
24. Goldberg HI, Toros A. The use of traditional methods of contraception among Turkish couples. *Stud Fam Plann*. 1994;25(2):122. Doi: <https://doi.org/10.2307/2138089>
25. Chandra-Mouli V, McCarraher DR, Phillips SJ, et al. Contraception for adolescents in low and middle income countries: Needs, barriers, and access. *Reprod Health*. 2014;11(1):1-8. Doi: <https://doi.org/10.1186/1742-4755-11-1>
26. Oringanje C, Meremikwu MM, Eko H, et al. Interventions for preventing unintended pregnancies among adolescents. In: The Cochrane Collaboration, ed. *Cochrane Database Syst Rev*. Chichester, UK: John Wiley & Sons, Ltd; 2009. Doi: <https://doi.org/10.1002/14651858.CD005215.pub2>
27. Organization WH. Report of a WHO technical consultation on birth spacing. Geneva: World Health Organization. 2005. <https://apps.who.int/iris/handle/10665/69855>.
28. Ross JA, Winfrey WL. Contraceptive use, Intention to use and unmet need during the extended postpartum period. *Int J Fam Plan Perspect*. 2001;27(1):20-27. Doi: <https://doi.org/10.2307/2673801>
29. Women's Refugee Commission. A girl no more: The changing norms of child marriage in conflict. 2016. <https://www.womensrefugeecommission.org/girls/resources/1311-girl-no-more>.



Copyright: © **Han et al.** This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.