



OPEN ACCESS

Menstrual restriction prevalence and association with intimate partner violence among Nepali women

Lauren F Cardoso,¹ Cari Jo Clark,² Kelsey Rivers,³ Gemma Ferguson,⁴ Binita Shrestha,⁴ Jhumka Gupta³

¹School of Social Policy and Practice, University of Pennsylvania, Philadelphia, USA

²Department of Global Health, Rollins School of Public Health, Emory University, Atlanta, Georgia, USA

³Department of Global and Community Health, College of Health and Human Services, George Mason University, Fairfax, Virginia, USA

⁴Equal Access International, San Francisco, California, USA

Correspondence to

Dr Jhumka Gupta, Department of Global and Community Health, College of Health and Human Services, George Mason University, Fairfax, VA 22030, USA; jgupta4@gmu.edu

Received 6 September 2017

Revised 27 June 2018

Accepted 24 August 2018

Published Online First 2018

ABSTRACT

Introduction Emerging research has linked women's sanitation and menstrual hygiene experiences with increased vulnerability to violence outside the home. Few studies, however, have investigated the relationship between menstruation and violence perpetrated by family members. This type of violence may be linked specifically to restrictions placed on women during menstruation, which are common in some regions of Nepal owing to shared power differentials that disfavour women, and societal norms that stigmatise menstruation.

Objective To record the prevalence of menstrual restrictions experienced by married women and examine potential associations between intimate partner violence (IPV) in the past year and menstrual restrictions imposed by husbands and/or in-laws among women in three districts of Nepal: Nawalparasi, Kapilvastu and Chitwan.

Methods Baseline data from a larger randomised control trial aiming to reduce IPV in three districts of the Terai region of Nepal (n=1800) were used to assess the prevalence of menstrual restrictions and the association with IPV.

Results Nearly three out of four women (72.3%) reported experiencing high menstrual restriction, or two or more types of menstrual restriction. When controlling for demographic variables and IPV, no type of IPV was associated with high menstrual restrictions.

Conclusion The experience of menstrual restriction was widespread in this sample of women in Nepal. Future research should seek to identify how best to capture menstrual stigma and deviations around such norms. The global health and development community should prioritise integration with existing water and sanitation programmes to reduce stigma and ensure the well-being of menstruating women and girls.

Trial registration number NCT02942433.

Key messages

- ▶ Menstrual restrictions are common among women in the Terai region of Nepal.
- ▶ When controlling for demographic variables, no form of IPV was associated with high menstrual restrictions.
- ▶ Future research should seek to identify how best to capture menstrual restrictions and stigma, including deviations around such norms.

INTRODUCTION

After a decade of research and advocacy by global health experts, menstrual health and hygiene is now recognised as a public health concern.^{1 2} In low- and middle-income countries, in particular, recent efforts have focused on dealing with the lack of puberty education and menstrual products and the inadequacy of water and sanitation facilities in schools.¹ By some estimates, only 47% of schools in low-income countries have water coverage and only 46% have sanitation infrastructure.³ The failure to provide girls with information and hygienic facilities reinforces the notion that menses are a private matter to be hidden and, in part, explains why many girls miss school while menstruating.^{4 5} Experiencing shame and fear related to menstruation can diminish girls' self-confidence⁶ and has implications for their health and well-being into adulthood.⁷

Emerging evidence has linked women's sanitation and hygiene experiences with increased vulnerabilities to violence.^{8 9} Specifically, poor access to public toilet facilities—either they are too far away or too few—or poor design of the facilities, dimly lit or isolated, leaves women at risk of sexual harassment, assault and



© Author(s) (or their employer(s)) 2019. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Cardoso LF, Clark CJ, Rivers K, et al. *BMJ Sex Reprod Health* 2019;**45**:38–43.

rape.^{10 11} According to the UN, lack of access is widespread: one in three women does not have access to safe, adequate toilets.¹² A recent population-based study in Kenya directly linked violence against women and inadequate sanitation. Winter and Barchi¹¹ found that Kenyan women who practised open defaecation had greater odds (adjusted OR = 1.387) of reporting non-partner violence than women who had access to improved sanitation.¹¹ Women and girls who are menstruating and require more frequent use of these facilities are at increased risk of abuse.⁹ Menstruation has been linked to gender-based violence in other ways as well. Girls attending school while menstruating can experience psychological abuse and ridicule from male classmates, particularly if they soil their clothing.¹³

There is some evidence of increasing research and programmes focusing on menstrual health and women and girls' vulnerability to violence outside the home, but little research has specifically investigated links between violence within the home (ie, intimate partner violence (IPV)) and menstrual health. IPV may be linked to menstrual health owing to power differentials that disfavour women as well as societal norms that stigmatise menstruation. For instance, in Nepal and other global settings, the onset of menses signals girls' sexual maturity, triggering their removal from school and increasing their vulnerability to forced and/or early marriages¹⁴; early marriage has been reported to increase a women's likelihood of experiencing IPV.¹⁵

IPV has also consistently been associated with reduced reproductive autonomy and sexual decision-making among women.^{16 17} Perpetrators of IPV and reproductive coercion are male partners as well as extended family members, including in-laws.¹⁸ Similarly, in Nepal, women's and girls' autonomy is often restricted during menstruation by family members, husbands and in-laws. Common practices include forbidding a menstruating woman or girl to pray or enter a place of worship, cook or enter the kitchen, or touch men or children.^{19 20} In extreme cases, a woman may be banished to small outbuildings while menstruating. This practice, known as *Chaupadi*, is generally prevalent in certain areas within the midwest and far-western development regions of Nepal. One study reported that 21% of 672 women reported such experiences²¹; and recent media reports have highlighted the potential lethality of such practices.^{22 23} IPV prevalence in Nepal mirrors the global average, with one in three women facing this type of abuse.^{24 25} The extent to which IPV might influence or co-occur with these restrictive menstrual practices is unclear.

Despite the shared controlling nature of IPV and menstrual restriction and the shared health consequences, no studies to date have examined the relationship between these two phenomena. Thus, this study aims to record the prevalence of menstrual restrictions experienced by married women, and examine potential associations between IPV in the past year

and menstrual restrictions imposed by husbands and/or in-laws among women in three districts of Nepal: Nawalparasi, Kapilvastu and Chitwan.

METHODS

Our analysis used baseline data from a larger randomised control trial²⁶ aiming to reduce IPV in three districts within the Terai region in Nepal (n=1440 female community respondents, n=360 intensive intervention participants, ages 18–49) to document the prevalence of such restrictive practices. The study received ethical approval from George Mason University (8 02 242–1), Emory University (IRB00091115) and the Nepal Health Research Council (178/2015).

Measures

Emotional IPV was assessed using the WHO Multi-Country Study on Women's Health and Domestic Violence scale.²⁷ Specifically, each woman was asked if her husband had insulted or made her feel bad, belittled or humiliated her in front of other people, done things to scare or intimidate her and threatened to hurt her or someone she cared about in the past 12 months. Economic IPV was assessed using the United Nations Multi-Country Study on Men and Violence three-item scale, which asks if in the past year the woman's husband had prevented her from getting a job, going to work, trading or earning money; taken her earning or valuables against her will; and kept money from his earnings for alcohol, tobacco or other things for himself when he knew she having trouble affording the household expenses.²⁸ Using the Standard Outcomes for Assessment of Intimate Partner Violence from the What Works to Prevent Violence Global Programme, we assessed physical and sexual IPV in the past year.²⁹ Each woman reported how often her husband had slapped or thrown something at her; pushed or shoved her; hit her with his fist or something else; kicked, dragged, beaten, choked or burned her; threatened or actually used a gun, knife or other weapon against her; physically forced her to have sex; made her feel so afraid that she had sex when she did not want to; and forced her to do something sexual she did not want to. Dichotomous variables were created for each type of violence. Women who answered in the affirmative for any scale item were considered to have experienced that type of violence. A dichotomous 'any IPV' variable was also created. A woman was coded as having experienced any IPV if she reported experiencing emotional, physical or sexual violence.

Menstrual restriction was assessed using a six-item scale designed in consultation with local Nepalese non-governmental organisations to capture common experiences. Each woman was asked if her husband or in-laws expected her to do any of the following during menstruation: not sleep with her husband, stay away from everyone, not enter a temple or place of worship, stop praying (outside of the temple), not cook, or

other restriction. Women could choose all factors that applied. A dichotomous variable was created: women who chose one or none of the items were coded as 'low menstrual restriction' and women who selected two or more items were coded as 'high menstrual restriction.' Since this is among the first studies to quantify menstrual restrictions, the variable was coded to capture the quartile of respondents who experienced most restrictions.

The demographic variables were drawn from previous research in Nepal on IPV^{30 31} and included a continuous measure of age and categorical measures of education and husband's education (none, primary, secondary and higher). Additionally, categorical variables were created for age at marriage (≤ 14 , 15–17 and ≥ 18) and number of children (0, 1–3, ≥ 4). A dichotomous measure was created for household income stress (yes/no). In consultation with in-country partners, caste was coded as a dichotomous variable, comprising advantaged castes (eg, upper caste, advantaged Janajatis) and disadvantaged castes/religious minorities (eg, disadvantaged Janajatis, Dalit, Muslim).

Analysis

Descriptive statistics of all demographic, menstrual restriction and violence variables were obtained. Bivariate cross-tabulations using Pearson's χ^2 tests assessed the association between demographics and menstrual restrictions, and between menstrual restriction and IPV. Generalised estimating equation logistic regressions were used to assess the relationship between IPV and menstrual restriction while accounting for the clustering within the data. Unadjusted logistic regressions were conducted with each type of IPV (separately) as the predictor and high menstrual restriction as the outcome. Finally, we used two adjusted logistic regressions. The first included any IPV and menstrual restriction, while controlling for demographic variables. The second adjusted logistic regression included all the (separate) types of IPV, so as to isolate the association of each type with the outcome, menstrual restriction, while also controlling for the demographic variables.

Patient statement

Participants were not directly involved in the design of the research. However, the research team relied on the local knowledge and expertise of our in-country implementation partners to help devise and carry out a study reflective of the communities' needs and experiences. After conclusion of the larger study, the results of this paper and others will be disseminated to participants via community meetings.

RESULTS

As shown in table 1, participants had a mean age of 34.5. Around one in three women (31.2%) had no education and almost one in five (18.5%) had more than a secondary education. Husbands were slightly

Table 1 Demographic characteristics and associations with menstrual restrictions

	Total (n=1800)	Low menstrual restriction (%)	High menstrual restriction (%)	P values
Total (%)	100	27.7	72.3	
Demographics				
Age (years)	34.5	33.9	34.8	0.047
Education				
None	562 (31.2)	36.3	63.7	<0.001
Primary	444 (24.7)	24.6	75.5	
Secondary	461 (25.6)	26.5	73.5	
Higher	333 (18.5)	19.2	80.8	
Husband's education				
None	253 (14.1)	34.0	66.0	<0.001
Primary	397 (22.1)	32.5	67.5	
Secondary	636 (35.4)	27.8	72.2	
Higher	510 (28.4)	20.4	79.6	
Age at marriage (years)				
≤ 14	226 (12.6)	30.5	69.5	0.415
15–17	646 (35.9)	28.5	71.5	
≥ 18	928 (51.6)	26.5	73.5	
Number of children				
None	77 (4.3)	28.6	71.4	0.955
1–3	1435 (79.7)	27.8	72.2	
4+	288 (16.0)	27.1	72.9	
Income stress				
Yes	806 (44.9)	26.6	73.4	0.269
No	990 (55.1)	28.9	71.1	
Caste/ethnicity				
Disadvantaged	952 (52.9)	40.2	59.8	<0.001
Advantaged	848 (47.1)	13.7	86.3	

more educated: 14.1% had no education, while 28.4% had attended higher than secondary school. Nearly half (48.5%) of the sample had been married before the age of 18—35.9% between the ages of 15 and 17 and 12.6% at age ≤ 14 . The majority of women (79.7%) had between 1 and 3 children. Just under half of the participants (44.9%) reported experiencing household income stress and just over half (52.9%) were from a disadvantaged caste.

Experience of menstrual restriction was widespread. Almost three out of four women (72.3%) reported experiencing high menstrual restriction, or two or more types of menstrual restriction. Experience of menstrual restriction varied significantly by age ($p=0.047$) and by education. Women who were more educated ($p<0.001$) or who had husbands who were more educated ($p<0.001$) reported higher levels of menstrual restriction. Women from an advantaged caste also reported higher levels of menstrual restriction ($p<0.001$).

Table 2 Unadjusted and adjusted logistic regressions for associations between past-year intimate partner violence (IPV) and menstrual restrictions

	Totals N (%)	Low menstrual restriction (%) (n=499)	High menstrual restriction (%) (n=1301)	OR, 95% CI	P values	AOR, 95% CI	P values
IPV variables							
Any IPV*	726 (40.4)	41.9	39.8	0.91 (0.74 to 1.13)	0.398	1.05 (0.84 to 1.32)	0.674
Emotional IPV	522 (29.0)	29.1	29.0	1.00 (0.79 to 1.25)	0.996	1.30 (0.95 to 1.76)	0.100
Economic IPV	315 (17.5)	20.2	16.5	0.84 (0.64 to 1.09)	0.526	0.91 (0.68 to 1.22)	0.535
Physical IPV	282 (15.7)	19.4	14.2	0.68 (0.52 to 0.90)	0.006	0.73 (0.51 to 1.05)	0.095
Sexual IPV	325 (18.1)	18.8	17.8	0.95 (0.73 to 1.23)	0.679	1.10 (0.81 to 1.51)	0.543
Demographics							
Age						1.01 (0.99 to 1.02)	0.365
Education							
Primary						1.42 (1.05 to 1.92)	0.024
Secondary						1.11 (0.78 to 1.59)	0.554
Higher						1.35 (0.84 to 2.17)	0.210
None						(Ref)	
Husband's education							
Primary						0.96 (0.68 to 1.37)	0.839
Secondary						1.08 (0.75 to 1.53)	0.678
Higher						0.97 (0.63 to 1.50)	0.900
None						(Ref)	
Caste							
Advantaged						3.94 (2.97 to 5.20)	<0.001
Disadvantaged						(Ref)	
Age at marriage							
15–17						1.12 (0.79 to 1.58)	0.527
18+						1.00 (0.70 to 1.43)	0.983
≤14						(Ref)	
Number of children							
1–3						0.72 (0.41 to 1.24)	0.236
4+						0.85 (0.45 to 1.62)	0.622
None						(Ref)	
Income stress							
Yes						1.04 (0.83 to 1.32)	0.726
No						(Ref)	

*Any IPV includes emotional, physical or sexual violence. The adjusted logistic regression for any IPV, does not include the other IPV variables, but does include menstrual restriction (the main outcome) and demographic control variables (not reported).

As shown in table 2, in the past year 40.4% of women reported any IPV, 29% reported emotional IPV, 17.5% reported economic IPV, 15.7% reported physical IPV and 18.1% reported sexual violence. Unadjusted odds ratios showed that with the exception of physical violence, all other types of IPV were not significantly associated with high menstrual restrictions. When controlling for demographic variables and IPV, adjusted regressions indicated that no type of IPV was associated with high menstrual restrictions.

DISCUSSION

These findings indicate that women's participation in family and social life during menstruation is widely restricted by both husbands and husbands' family members in this sample of married women from three districts in the Terai region of Nepal. Our study sought to examine whether IPV correlated with experience of menstrual restriction; no such association was identified. Because this study is among the first to assess both menstrual restrictions and potential associations with

IPV experiences, further research is clearly needed. It may be that owing to the prevalence of self-reported menstrual restriction among participants in this sample, significant associations were not found because of limited variation in the outcome of interest. Furthermore, some 7 in 10 Nepalese women reported high levels of menstrual restriction in this sample, thus indicating that such restrictions reflect a socially accepted practice. This study did not examine whether or not women accepted this practice, and neither did it investigate whether women resisted or deviated from this socially acceptable practice. Possibly, women who challenge or defy socially acceptable practices, such as menstrual restrictions, may be more vulnerable to IPV. Similar to IPV and gender norms research, it would be important for future research to identify specific situations that are less socially acceptable than others. For instance, challenging the menstrual restriction of not entering a temple might have elicited more negative responses than not entering the kitchen. One limitation of the study is that measurement of menstrual restriction has not been standardised. This study is a critical first step in this process, but additional research is needed. Future research should also seek to identify how best to capture menstrual stigma, norms, and deviations around such norms to obtain a better understanding of this gendered phenomenon.

The study of social norms and menstrual restrictions is particularly important in light of recent events in Nepal. In August 2017, Nepal passed a law criminalising *Chaupadi*. This action was widely received as a positive step toward ensuring the safety and well-being of Nepali women and girls. However, as indicated by our findings and prior research,^{19–21} numerous types of menstrual restriction are faced in Nepal, and in some areas these practices are pervasive. Similar to other practices rooted in gender norms (eg, IPV, child marriage), ending these practices will require, together with legislation, changing and challenging social norms. Since Nepal's 2015 earthquake, increased programming and funding has focused on gender equity and women's empowerment. More research is needed to determine how such initiatives might also deal with social norms, stigma and restrictions related to menstruation.

The high frequency of menstrual restrictions reported herein highlights the need for global health and development to address this problem. Although not explicitly stated in the sustainable development goals,³² ensuring menstruation is safe and destigmatised is essential to achieving these targets, particularly those related to health, equitable education, gender equality, available and adequate sanitation and inclusive economic opportunity. Integrating efforts to reduce menstrual stigma within existing water, sanitation and hygiene (WASH) initiatives that focus on menstrual hygiene education and facilities is an initial way to tackle this issue jointly with sustainable development goal priorities.

Funding This manuscript has been funded by a grant (#P06254) from UK government aid, via the What Works to Prevent Violence Against Women and Girls? Global Programme. The funds were managed by the South African Medical Research Council. The views expressed do not necessarily reflect the UK government's official policies.

Competing interests None declared.

Patient consent Not required.

Ethics approval George Mason University (802242-1), Emory University (IRB00091115), and the Nepal Health Research Council (178/2015).

Provenance and peer review Not commissioned; externally peer reviewed.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

REFERENCES

- Sommer M, Hirsch JS, Nathanson C, *et al.* Comfortably, safely, and without shame: defining menstrual hygiene management as a public health issue. *Am J Public Health* 2015;105:1302–11.
- Sommer M, Sutherland C, Chandra-Mouli V. Putting menarche and girls into the global population health agenda. *Reprod Health* 2015;12:24.
- Unicef. Water, 2013. Sanitation and hygiene annual report https://www.unicef.org/wash/files/WASH_Annual_Report_Final_7_2_Low_Res.pdf (accessed 20 Aug 2017).
- Sommer M. Where the education system and women's bodies collide: the social and health impact of girls' experiences of menstruation and schooling in Tanzania. *J Adolesc* 2010;33:521–9.
- McMahon SA, Winch PJ, Caruso BA, *et al.* 'The girl with her period is the one to hang her head' Reflections on menstrual management among schoolgirls in rural Kenya. *BMC Int Health Hum Rights* 2011;11:7.
- Williams JM, Currie C. Self-esteem and physical development in early adolescence: pubertal timing and body image. *The Journal of Early Adolescence* 2000;20:129–49.
- Schooler D, Ward LM, Merriwether A, *et al.* Cycles of shame: menstrual shame, body shame, and sexual decision-making. *J Sex Res* 2005;42:324–34.
- Amnesty International. *Insecurity and indignity: women's experiences in the slums of Nairobi, Kenya*. Kenya, 2010. <https://www.amnesty.org/en/documents/AFR32/002/2010/en/> (accessed 20 Aug 2017).
- Sommer M, Ferron S, Cavill S, *et al.* Violence, gender and WASH: spurring action on a complex, under-documented and sensitive topic. *Environ Urban* 2015;27:105–16.
- Corburn J, Hildebrand C. Slum sanitation and the social determinants of women's health in Nairobi, Kenya. *J Environ Public Health* 2015;2015:1–6.
- Winter SC, Barchi F. Access to sanitation and violence against women: evidence from Demographic Health Survey (DHS) data in Kenya. *Int J Environ Health Res* 2016;26:291–305.
- UNICEF & WHO, 2015. Progress on sanitation and drinking water – 2015 update and MDG assessment. http://apps.who.int/iris/bitstream/10665/177752/1/9789241509145_eng.pdf?ua=1 (accessed 20 Aug 2017).

- 13 Chikwiri E, Lemmer EM. Gender-based violence in primary schools in the Harare and Marondera Districts of Zimbabwe. *Journal of Sociology and Social Anthropology* 2014;5:95–107.
- 14 Kirk J, Sommer M. Menstruation and body awareness: linking girls' health with girls' education. *Special on Gender and Health* 2006 <http://www.susana.org/en/resources/library/details/1200> (accessed 20 Aug 2017).
- 15 Raj A, Saggurti N, Lawrence D, *et al.* Association between adolescent marriage and marital violence among young adult women in India. *Int J Gynaecol Obstet* 2010;110:35–9.
- 16 Moore AM, Frohworth L, Miller E. Male reproductive control of women who have experienced intimate partner violence in the United States. *Soc Sci Med* 2010;70:1737–44.
- 17 Gee RE, Mitra N, Wan F, *et al.* Power over parity: intimate partner violence and issues of fertility control. *Am J Obstet Gynecol* 2009;201:148.e1–7.
- 18 McCauley HL, Falb KL, Streich-Tilles T, *et al.* Mental health impacts of reproductive coercion among women in Côte d'Ivoire. *Int J Gynaecol Obstet* 2014;127:55–9.
- 19 Crawford M, Menger LM, Kaufman MR. 'This is a natural process': managing menstrual stigma in Nepal. *Cult Health Sex* 2014;16:426–39.
- 20 Morrison J, Basnet M, Bhatta A, *et al.*, 2016. Menstrual hygiene management in Udaypur and Sindhuli districts of Nepal. https://www.researchgate.net/profile/Joanna_Morrison/publication/312377297_Menstrual_hygiene_management_in_Udaypur_and_Sindhuli_districts_of_Nepal/links/587c881308aed3826aec1efb.pdf (accessed 20 August 2017).
- 21 Ranabhat C, Kim CB, Choi EH, *et al.* Chhaupadi culture and reproductive health of women in Nepal. *Asia Pac J Public Health* 2015;27:785–95.
- 22 Preiss D, 2017. 15-Year-old girl found dead In a menstrual hut In Nepal. NPR 2016 December <http://www.npr.org/sections/goatsandsoda/2017/07/10/536483652/banished-to-a-menstrual-shed-a-teen-in-nepal-is-bitten-by-a-snake-and-dies> (accessed Aug 10, 2017).
- 23 Preiss D. 15-year-old girl found dead in a menstrual hut. NPR, 2016. <http://www.npr.org/sections/goatsandsoda/2016/12/20/506306964/15-year-old-girl-found-dead-in-a-menstrual-hut-in-nepal> (accessed 10 Aug 2017).
- 24 MoHP. *Nepal demographic and health survey, 2011*. Family Health Division, Dept. of Health Service, Ministry of Health, His Majesty's Govt MoHP, 2011.
- 25 WHO. Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence. 2013. http://apps.who.int/iris/bitstream/10665/85239/1/9789241564625_eng.pdf (accessed 6 Feb 2016).
- 26 Clark CJ, Spencer RA, Shrestha B, *et al.* Evaluating a multicomponent social behaviour change communication strategy to reduce intimate partner violence among married couples: study protocol for a cluster randomized trial in Nepal. *BMC Public Health* 2017;17:75.
- 27 García-Moreno C, Jansen H, Ellsberg M, *et al.* *WHO Multicountry Study on Women's Health and Domestic Violence against Women: summary report of initial results on prevalence, health outcomes and women's responses*. Geneva: World Health Organization, 2005. <http://www.who.int/reproductivehealth/publications/violence/24159358X/en/> (accessed 20 Aug 2017).
- 28 Fulu E, Warner X, Miedema S, *et al.* *Toolkit for replicating the UN Multi-Country Study on Men and Violence: understanding why some men use violence against women and how we can prevent it*. Bangkok UNDP, 2013. <http://www.partners4prevention.org/sites/default/files/p4p-unmcr-step-guide.pdf> (accessed 20 Aug 2017).
- 29 What Works to Prevent Violence Global Program. Standard outcomes for assessment of intimate partner violence. 2015.
- 30 Atteraya MS, Gnawali S, Song IH. Factors associated with intimate partner violence against married women in Nepal. *J Interpers Violence* 2015;30:1226–46.
- 31 Lamichhane P, Puri M, Tamang J, *et al.* Women's status and violence against young married women in rural Nepal. *BMC Womens Health* 2011;11:19.
- 32 United Nations, Sustainable development goals, 2015. Secondary sustainable development goals <https://sustainabledevelopment.un.org/?menu=1300> (accessed 3 Sep 2018).