Unpacking the policy landscape for menstrual hygiene management: implications for school WASH programmes in India

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Menstrual hygiene management (MHM) relates to how girls and women manage their monthly period, and require access to information about menstruation, clean and safe menstrual absorbents, and amenities and facilities such as toilets and water, and waste management to maintain hygiene. In general MHM is poor in India, with low levels of knowledge and many misconceptions, varied use of menstrual absorbents, and unhygienic practices among adolescent girls. With almost 50 per cent of school-aged girls enrolled in schools, creating a conducive environment in schools to promote MHM is imperative. This policy scoping exercise examines how select policy initiatives implemented by the Government of India address MHM, especially in the context of schools. This document review found that adolescent girls are a focus of most policy initiatives addressing MHM, with a focus primarily on the hardware (i.e. infrastructure, sanitary napkins) or software (i.e. health education) components. Most programmes are implemented at the school level, though guidelines for implementation are not always explicit. Programmes suggest convergence with other government programmes, yet operationalization of convergence mechanisms is lacking.

Keywords: toilets, menstrual hygiene management, policy, adolescent girls

MENSTRUATION MAY BE A NORMAL, healthy occurrence for girls and women of reproductive age, yet many struggle to manage their monthly period in a safe and hygienic way, resulting in a range of adverse health, social, and educational outcomes. Adolescent girls' understanding of menstruation is characterized by poor knowledge and erroneous beliefs about how and why menstruation occurs (Garg et al., 2001; Narayan et al., 2001; Khanna et al., 2005; Dasgupta and Sarkar 2008; Nemade et al., 2009; Jogdand and Yerpude, 2011; Kumar and Srivastava, 2011). Socio-cultural beliefs and taboos surrounding menstruation shape girls' understanding to a large extent, and influence how they deal with it. The deeply entrenched belief that menstrual blood is dirty, impure, or polluting determines how girls manage

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menstruation including their choice of menstrual-absorbent hygiene practices, and observance of social, religious, and food restrictions (Omidvar and Begam 2010; Nemade et al., 2009; Dasgupta and Sarkar, 2008; Deo and Ghattargi, 2005; Garg et al., 2001; Narayan et al., 2001).

Girls and women use a variety of safe and unsafe absorbent materials during menstruation, guided by the availability of, access to, and affordability of products, facilities, or services to wash or dispose of them, as well as the socio-cultural acceptability of absorbent materials and facilities (Nemade et al., 2009; Narayan et al., 2001). Evidence on the use of various menstrual absorbents is mixed. The reported use of commercially available sanitary pads ranges from a high of 70.4 per cent to a low of 12 per cent (Kamath et al., 2013; Sinha, 2011).

The inability to manage a normal monthly occurrence such as menstruation has profound physical, mental, social, and economic implications for girls. The inability to maintain adequate menstrual hygiene exposes girls and women to several health risks such as reproductive tract infections, urinary tract infections, restricted food and liquid intake, anaemia, gender-based violence, and poor mental health. School attendance may suffer with some girls missing school or discontinuing their education altogether and social interactions may be restricted (Sumpter and Torondel, 2013).

India's Right to Education (RTE) Act of 2010 advocates for the provision of free and compulsory education to all children ages 6–14 years. With 48 per cent of girls currently enrolled in school (grades 1 through 12), the absence of sanitation facilities may undermine educational attainment among girls (Ministry of Human Resource Development, 2009). The availability of accessible and usable sanitation facilities can improve school enrolment and retention, especially for primary and secondary education among teenage girls (Jasper et al., 2012; Birdthistle et al., 2011).

Two explanations link menstruation and school absenteeism: 1) the 'pull out' factor – whereby girls remain absent due to painful menses, or due to socio-cultural constraints imposed on them on attaining menarche; and 2) 'push out' factors related to inadequate and/or unacceptable sanitation facilities for girls in schools that hinder their ability to manage menstruation (Birdthistle et al., 2011). Even when schools have toilet facilities, girls may find it difficult to manage menstruation due to the unavailability of disposal mechanisms, and poor water supply for washing or flushing (Sommer et al., 2013). A recent survey found that a fifth of schools surveyed in India had no separate toilets for girls. Among schools having separate girls' toilets, 13.6 per cent were locked, 13.9 per cent of accessible toilets were not in a condition to be used, and only a little over half of the schools had usable, unlocked toilets (Pratham, 2014). In Andhra Pradesh, while 73 per cent of the schools surveyed had toilets, students were not using toilets in 64 per cent of these schools due to lack of water, poor maintenance, or damaged facilities. The greater need for toilets by girls was highlighted with 62 per cent of female students using toilets compared with only 38 per cent of male students. When schools lacked toilets, girls were less likely than boys to relieve themselves outside the school premises, and were more likely to go home (WaterAid India and Center for World Solidarity, 2012). Adequate and appropriate WASH facilities in schools are important

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considerations for school-going girls, both for their educational attainment and their health. The scope of Indian policy initiatives in enabling school-going girls to manage their menstruation healthily, safely, and with dignity requires exploration, and can potentially confer long-term benefits in terms of both education and health.

Aims and objectives of this study

This policy review defines MHM as:

> women and adolescent girls are using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear (Global Monitoring Working Group on Hygiene, 2012).

We identify three key components of MHM: 1) the knowledge and capacity to manage menstruation; 2) the availability of, access to, and use of safe and hygienic menstrual absorbents; and 3) the availability of, and access to water and sanitation facilities, and disposal mechanisms. With this in mind, this review aims to examine the focus and scope of Government of India (GoI) policies and programmes to address these MHM components in schools. The three interrelated objectives of this study are to:

- identify the policy actors addressing MHM in India;
- understand the approaches deployed by these policy actors to address MHM, especially in schools;
- identify the policy gaps and opportunities to address MHM in schools.

Methodology

The policy initiatives reviewed were selected on the inclusion of adolescent girls as a beneficiary group, and policy guidelines addressing any of the MHM components listed above. Initiatives that did not focus on adolescent girls and address any MHM component were excluded. Discussions with stakeholders (implementation and advocacy organizations) working on water, sanitation, and hygiene and/or MHM in India facilitated the identification of the central ministries that met these criteria. Policy documents, guidelines, programme implementation frameworks, and budgets were sourced from ministry websites and were examined to understand how they addressed the hardware (i.e. manufacture/procurement and distribution of sanitary pads, toilet construction, solid and liquid waste management) and software (i.e. MHM-related education, counselling, health services) MHM components.

The review was guided by the policy analysis framework developed by Collins (2005), using the following eight steps: 1) define the context; 2) state the problem;

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3) search for evidence; 4) consider different policy options; 5) project the outcomes; 6) apply evaluative criteria; 7) weigh the outcomes; and 8) make the decision. Steps 1–3 have been covered in the introductory section of this paper. The next section focuses on examining the MHM policy landscape in India (steps 4–7), and identifying gaps and opportunities (step 8). Policies were assessed (step 6) according to pre-determined criteria, including beneficiary groups (i.e. school-going and out-of-school adolescent girls), programme coverage, programme focus and approach, monitoring and evaluation (M&E) indicators, and budgetary allocations. Based on this assessment, policies and programmes were categorized as addressing either the hardware or software or both MHM components, especially in the context of schools. Lacunae in these initiatives and opportunities to strengthen MHM components under their ambit are then discussed.

Findings

Four ministries under the Government of India (GoI) directly or indirectly address software and/or hardware components of MHM: Ministry of Health and Family Welfare, Ministry of Women and Child Development, Ministry of Human Resource Development, and Ministry of Drinking Water and Sanitation.

Ministry of Health and Family Welfare

The Ministry of Health and Family Welfare (MoHFW) manages the National Health Mission (NHM) covering the National Rural Health Mission (NRHM) and the National Urban Health Mission. Menstrual hygiene is clearly mentioned in policy and strategy documents under two initiatives: the Menstrual Hygiene Scheme (MHS) and the Rashtriya Kishor Swasthya Karyakram (RKSK).

MHS, primarily targeting rural adolescents aged 10–19 years, was launched in 2010 under NRHM's adolescent reproductive and sexual health (ARSH) component. The scheme's objectives are in line with the key MHM components: 1) increase awareness among adolescent girls on menstrual hygiene, build self-esteem, and empower girls for greater socialization; 2) increase access to and use of high quality sanitary napkins by adolescent girls in rural areas; and 3) Ensure safe disposal of sanitary napkins in an environment friendly manner (Ministry of Health and Family Welfare, 2010).This scheme aims to reach 25 per cent of adolescent girls in the 152 pilot districts covering 20 states. MHS articulates six components: 1) education and outreach in communities and schools; 2) ensuring availability of sanitary napkins to adolescents; 3) sourcing of sanitary napkins through the self-help groups (SHGs) or from MoHFW (Central supply); 4) training of accredited social health activists (ASHAs) to provide MHM education; 5) developing behaviour change communication on MHM; and 6) ensuring safe disposal of sanitary napkins. MHS proposes a comprehensive approach to MHM, addressing both hardware and software components. Yet, the MHS guidelines indicate that the primary thrust is the sale of subsidized sanitary napkins, branded 'Freedays' to adolescent girls by ASHAs. In 107 districts across 17 states, sanitary pads are procured from the Central Government,

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while in 45 districts, ASHAs distribute SHG produced sanitary napkins (Ministry of Health and Family Welfare, 2010).

In addition to sanitary napkin distribution, ASHAs are expected to equip girls with essential information on MHM and the disposal of sanitary napkins through information, education, communication (IEC) materials. Schools can install incinerators for disposal by utilizing funds from other ministries and their programmes such as the Nirmal Bharat Abhiyan (NBA) and Sarva Shiksha Abhiyan (SSA). Operationalization of these guidelines is unclear through existing programme documentation.

The Operational Guidelines focus on the procurement and sale of sanitary napkins. The monitoring and supervision of MHS underscores this emphasis as the key tracking indicators collect data on the number of adolescent girls reached, number of sanitary napkins sold, rental costs for napkin storage, and the incentives owed to or received by ASHAs. The data is disaggregated by poverty indicator but not by girls' school status, and little information is available on MHS implementation in schools and on girls' knowledge of MHM.

The RKSK was launched in January 2014 to bolster the adolescent health component under NRHM, and includes an explicit focus on younger adolescents (10–14 years) and older adolescents (15–19 years), rural and urban adolescents, in-school and out-of-school adolescents, and married and unmarried adolescents. Operationalized though the seven Cs framework (Coverage, Content, Communities, Clinics, Counselling, Communication, and Convergence), RKSK identifies menstrual hygiene as a key strategic priority addressed through the clinic component for the treatment of menstrual disorders, and convergence with the MHS (Ministry of Health and Family Welfare, 2014). The strategy document states that health education will address menarche and healthy menstrual practices, especially among young adolescents aged 10–14 years, as well as the promotion of menstrual hygiene through the provision of sanitary napkins and clean cloths. Health facilities will serve as depots for sanitary napkins and also treat menstrual problems and disorders (Ministry of Health and Family Welfare, 2014). Both school-going and out-of-school adolescents will receive interventions that provide access to menstrual absorbents and disposal mechanisms; in schools, this will be implemented in collaboration with departments of education and sanitation, and in communities, frontline workers such as ASHAs will be tasked with providing sanitary napkins and information on disposal. The RKSK strategy document outlines key indicators related to menstrual hygiene including the percentage of girls using disposable sanitary napkins or washed and sun-dried cloth, and the percentage of schools and adolescent counselling and health centres providing sanitary napkins (Ministry of Health and Family Welfare, 2014).

It is still unclear how many districts will be covered under RKSK. While budget allocations to address menstrual hygiene under this recently launched programme do not exist, the proposed 2014–2015 budget format includes activities under the MHS as a line item, while the budget for the procurement of sanitary napkins has been slotted under procurement. The RKSK strategy document addresses both

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hardware and software MHM components, but M&E indicators and budgetary allocations reflect a greater hardware focus.

Ministry of Women and Child Development (MWCD)

Launched in 2010–2011, the Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG) or SABLA is designed to address the critical nutrition and education needs of adolescent girls. SABLA's combined focus on nutrition, education, and empowerment is underscored by its objectives: 1) enabling self-development and empowerment; 2) improving nutrition and health status; 3) spreading awareness about health, hygiene, nutrition, ARSH, and family and child care; 4) upgrading home-based skills, life skills, and vocational skills; 5) mainstreaming out-of-school adolescent girls into formal/non-formal education; and 6) informing and guiding girls about existing public services, such as primary health centres, community health centres, post offices, banks, and police stations (Ministry of Women and Child Development, 2010). SABLA is being implemented in rural areas across 200 districts and provides services under the Integrated Child Development Scheme to all adolescent girls aged 10–18 years, both school-going and out-of-school.

Information on menstrual hygiene is primarily provided under the non-nutrition component of SABLA that imparts information on ARSH, informs girls about the reproductive system, menstruation, and how to manage menstruation. Menstruation and menstrual hygiene are also nominally mentioned under the nutrition component in the SABLA training module. While the distribution of sanitary napkins and treatment of menstrual disorders are not included under this scheme, girls may be referred to health facilities if required during the special adolescent health days. The guidelines propose that SABLA converge with MHS in overlapping districts (Ministry of Women and Child Development, 2010).

Menstrual hygiene does not have a separate budgetary allocation under SABLA. Monitoring data is collected on the number of girls receiving ARSH education, but data specific to menstrual hygiene is not obtained. Data is not disaggregated by girls' school status (Ministry of Women and Child Development, 2010).

Ministry of Drinking Water and Sanitation

The Ministry of Drinking Water and Sanitation (MDWS) manages the Nirmal Bharat Abhiyan (NBA), formerly the Total Sanitation Campaign (TSC), to improve sanitation practices and end open defecation by 2022. While the TSC was launched in 1999, the NBA guidelines are applicable from 2012 onwards. The NBA aims to facilitate sanitation coverage in rural areas by: 1) encouraging communities and local self-governments to implement sustainable sanitation solutions by providing health education; 2) instituting sanitation facilities in schools and promoting hygiene education; and 3) supporting development of cost effective and sustainable sanitation technologies and solid and liquid waste management (SLWM) (Ministry of Drinking Water and Sanitation, 2012). The underlying philosophy of the NBA is a demand-driven and community-led approach to sanitation.

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The NBA supports building of separate toilet blocks for girls in co-educational schools. Schools are encouraged to install toilets to match the number of students. MHM was not explicitly addressed under NBA until December 2013, when the guidelines were modified to include MHM activities under IEC and SLWM. The amendment includes hand-washing at critical times, and proposes that IEC funds be used to enhance awareness about and build capacity to maintain menstrual hygiene. The amendment proposes the establishment of incinerators in schools, women's community sanitary complexes, primary health centres, and other relevant locations (Ministry of Drinking Water and Sanitation, 2013). Funds allocated for SLWM may be used to finance the installation of incinerators to dispose of menstrual waste products.

An online monitoring system exists to track both physical and financial progress under NBA in each state noting the proportion of toilets and related infrastructure constructed as per project aims. However the latest MHM amendments are not explicitly addressed nor reflected in monitoring indicators for 2014–2015.

Ministry of Human Resource Development (MHRD)

Launched in 2000–2001, the Sarva Shiksha Abhiyan (SSA) aims to universalize primary education, encourage school retention, and bridge social and gender gaps in access to education among children aged 6–14 years (Ministry of Human Resource Development, 2011). One of the infrastructure components of SSA is to provide toilets and drinking water to students, as ways to make the school environment more conducive for students. The SSA draws from the RTE Act; gender is a key consideration both in the RTE Act and SSA, impacting girls' access to education and their continued enrolment in school. SSA guidelines underscore the importance of adequate and safe school infrastructure. The guidelines do not explicitly mention MHM but support the building of separate toilets for girls, and incinerators for both rural and urban schools. The guidelines propose programme funding and partnership with other government programmes and schemes for building of appropriate infrastructure (Ministry of Human Resource Development, 2011).

Drinking water and sanitation facilities are clubbed under Civil Works in SSA state budgets, and are not to exceed 33 per cent of total project costs. The Monitoring Results Framework tracks the change in the proportion of schools with common toilets as well as those with separate toilets for girls, but does not address any of the software MHM components (Ministry of Human Resource Development, 2011).

Discussion

Table 1 presents an overview of the various government initiatives addressing MHM, highlighting the key components analysed and identifying gaps.

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Table 1 Overview of policy landscape addressing MHM in India

Policy actor	*MoHFW*		*MWCD*	*MDWS*	*MHRD*
Specific programmes/ schemes	MHS	RKSK	SABLA	NBA	SSA
Beneficiary groups	School-going and out of school adolescent girls	School-going and out of school adolescent girls	School-going and out of school adolescent girls	School-going and out of school adolescent girls	School-going girls
Coverage	Primarily rural Pilot	Rural and urban Pilot	Primarily rural Pilot	Primarily rural	Rural and urban
Approach	Health	Health	Nutrition and health	Sanitation as a human right	Universalization of primary education
MHM software or hardware focus	Software and hardware	Software and hardware	Software	Software and hardware	Hardware
Budgetary allocations for MHM software or hardware component	Hardware	Hardware	Software (though no separate allocation for MHM per se)	Software and hardware	Hardware
M&E	Hardware	Hardware	Software (though not specified for MHM per se)	Hardware	Hardware
Proposed convergence	With MDWS and SSA	With MDWS and SSA	With MoHFW	With SSA	With NBA
Gaps	Budgetary allocation for MHM software component Clear guidelines on how school-going adolescents in rural and urban areas will be reached	Budgetary allocation for MHM software component Clear guidelines on how school-going adolescents in rural and urban areas will be reached	Explicitly address MHM through SABLA Clear guidelines on how school-going adolescents in rural areas will be reached	Clear guidelines on how school-going adolescents in rural and urban areas will be reached	Convergence with other schemes to address MHM software component, SLWM

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Policy actors addressing MHM

MHM is receiving policy and programme attention in India, especially within ministries addressing health, women's empowerment, water and sanitation, and education. The MHS is possibly the first attempt to directly and comprehensively address MHM followed by the inclusion of the MHM component in the NBA in December 2013. SSA focuses on toilet construction, lacking direct references to MHM education.

Approach

Adolescent girls are the beneficiaries of all the MHM-related policies and programmes reviewed here, with a focus on girls aged 10–19 years in mostly rural communities and school settings. The SSA and RKSK also reach or propose to reach girls in urban areas. Differences exist between ministries in their programmatic focus on MHM, shaping their approach to MHM. MoHFW views MHM as a health issue with implications for the reproductive health of adolescent girls, while the MWCD takes a nutrition and health approach to MHM. For MHRD, the aim is to enhance school retention particularly among girls. The NBA takes a rights-based perspective, stressing the availability and accessibility of sanitation facilities as a basic human right.

Coverage

MHM-related programmes under MoHFW and MWCD are yet to be scaled to cover all districts. The SSA and NBA are implemented across all districts in the country. MHS, RKSK (MoHFW), and SABLA (MWCD) reach both school-going and out-of-school girls in rural areas, and to a lesser extent, in urban areas. The programmes reviewed here mention that school-going girls will be reached but lack explicit guidelines on how the school component is operationalized.

Software or hardware focus

Health education on MHM is a common thread. While the MHS and RKSK explicitly mention MHM education as a separate component, the SABLA programme includes MHM under ARSH and nutrition education. Yet, programmes rarely mention tackling the socio-cultural taboos that play a critical role in how girls manage their period. Additionally, these programmes propose to build the capacity of ASHAs to impart health education in communities, but not in schools. Little information is provided on how MHS will be implemented with school-going girls in educational institutions. A critical difference between the MHM programmes under MoHFW and MWCD is that the former manufactures, procures, and distributes sanitary napkins at a subsidized cost, while the MWCD does not engage in such hardware activities. Deviating from the health education and sanitary napkin distribution focus of MoHFW and MWCD, programmes under MHRD and MDWS focus on building infrastructure to improve availability, accessibility, and acceptability of

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sanitation facilities. The NBA is striking in its approach in that it concurrently advocates for addressing the software needs related to MHM in addition to the hardware requirements. In keeping with its right-based approach to sanitation, the recent NBA amendments recommend that IEC activities also address MHM in schools and communities.

Budgetary allocations

Fund allocation reflects prioritization of the software or hardware aspects of MHM as well as the scope of programme implementation. In the MHS, funds are allocated for the manufacture, procurement, storage, and distribution of sanitary napkins, and to a lesser extent the training of ASHAs in providing MHM education. In contrast, the NBA has budget line items for IEC activities, toilet construction, and SLWM in almost all states. Funds for school-level initiatives are not specified in MHS and SABLA. SSA budgets for separate toilet blocks for girls in schools, with little focus on MHM education.

M&E frameworks

Along with budget allocations, M&E frameworks further allude to the programme's MHM software or hardware focus. The monitoring formats for MHS primarily report on the procurement and distribution of sanitary napkins. SABLA monitoring formats do not mention MHM at all. SSA reports note the number of separate toilet blocks for girls in schools, while the NBA maintains monthly physical and financial reports on all programme components, including IEC and SLWM. School-specific data is only available under NBA and SSA – all of which emphasize the hardware MHM components.

Convergence across programmes

Collaboration across programmes is clearly needed to address MHM comprehensively. All programmes reviewed mention the need to converge yet guidelines on how to facilitate effective convergence are absent. The nature of convergence, whether financial, programmatic, or of human resources, is unclear.

Conclusion

Considerable potential exists to enable adolescent girls to manage their monthly period safely and with dignity. The policy initiatives reviewed lay the foundation to address the software and hardware MHM components, and present opportunities for collaboration to ensure that girls have access to the information, support, services, products, and facilities they need. Each initiative discussed has certain strengths, and while no single initiative can address all MHM components at scale, collaborative action across sectors is potentially a sustainable and scalable solution. Opportunities to strengthen MHM in schools should include the following:

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- Promoting MHM education in schools through MHS, RKSK, SABLA, and NBA. Adequate funds should be allocated to MHM education activities in schools, in addition to infrastructure strengthening. Health education must address menstrual taboos and create a conducive socio-cultural environment to support MHM.
- Identifying and instituting solutions for the management and disposal of menstrual waste in schools, particularly through the latest NBA amendment for SLWM. Programmes should also consider facilities for washing and drying of menstrual cloths in schools.
- Strengthen M&E formats for MHM in schools, going beyond physical infrastructure to include MHM education, use of safe and hygienic menstrual absorbents, and SLWM.
- Involve school-going girls in identifying solutions to improve MHM in schools.

Given Prime Minister Narendra Modi's support for school WASH, a nodal ministry at the national level is needed to facilitate convergence and a corresponding state department must monitor implementation of MHM-specific interventions and outcomes in the context of WASH in schools.

References

Birdthistle, I., Dickson, K., Freeman, M., and Javidi, L. (2011) *What Impact Does the Provision of Separate Toilets for Girls at Schools Have on their Primary and Secondary School Enrolment, Attendance and Completion? A Systematic Review of the Evidence* [online], London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London <http://eppi.ioe.ac.uk/cms/LinkClick.aspx?fileticket=aX5WKT1UsKo%3d&tabid=3098&mid=5766> [accessed 14 February 2014].

Collins, T. (2005) 'Health policy analysis: a simple tool for policy makers', *Public Health* 119: 192–6 <http://dx.doi.org/10.1016/j.puhe.2004.03.006>.

Dasgupta, A. and Sarkar, M. (2008) 'Menstrual hygiene: how hygienic is the adolescent girl?' *Indian Journal of Community Medicine* 33: 77 <http://dx.doi.org/10.4103/0970-0218.40872>.

Deo, D.S. and Ghattargi, C.H. (2005) 'Perceptions and practices regarding menstruation: a comparative study in urban and rural adolescent girls', *Indian Journal of Community Medicine* 30: 33–34.

Garg, S., Sharma, N. and Sahay, R. (2001) 'Socio-cultural aspects of menstruation in an urban slum in Delhi, India', *Reproductive Health Matters* 9: 16–25 <http://dx.doi.org/10.1016/S0968-8080(01)90004-7>.

Global Monitoring Working Group on Hygiene (2012) *Meeting Report of Joint Monitoring Program Post-2015 Global Monitoring Working Group on Hygiene, Washington, DC* [pdf] <www.wssinfo.org/fileadmin/user_upload/resources/Meeting-Report-of-the-JMP-Post-2015-Hygiene-Working-Group-May-2012.pdf> [accessed 8 February 2014].

Jasper, C., Le, T.-T. and Bartram, J. (2012) 'Water and sanitation in schools: a systematic review of the health and educational outcomes', *International Journal of Environmental Research and Public Health* 9: 2772–87 <http://dx.doi.org/10.3390/ijerph9082772>.

Copyright

Jogdand, K. and Yerpude, P. (2011) 'A community-based study on menstrual hygiene among adolescent girls – India', *Indian Journal on Maternal and Child Health* 13(3).

Kamath, R., Ghosh, D., Lena, A., and Chandrasekaran, V. (2013) 'A study on knowledge and practices regarding menstrual hygiene among rural and urban adolescent girls in Udupi Taluk, Manipal, India', *Global Journal of Medicine and Public Health* 2: 1–4.

Khanna, A., Goyal, R.S., and Bhawsar, R. (2005) 'Menstrual practices and reproductive problems a study of adolescent girls in Rajasthan', *Journal of Health Management* 7: 91–107 <http://dx.doi.org/10.1177/097206340400700103>.

Kumar, A. and Srivastava, K. (2011) 'Cultural and social practices regarding menstruation among adolescent girls', *Social Work in Public Health* 26: 594–604 <http://dx.doi.org/10.1080/19371918.2010.525144>.

Ministry of Drinking Water and Sanitation (2012) *Guidelines Nirmal Bharat Abhiyan* [pdf] <www.mdws.gov.in/sites/upload_files/ddws/files/pdfs/Final%20Guidelines%20(English).pdf> [accessed 2 February 2014].

Ministry of Drinking Water and Sanitation (2013) *Modification in Nirmal Bharat Abhiyan (NBA) Guidelines including activities related to Menstrual Hygiene Management (MHM) as a permissible activity* [pdf] <www.mdws.gov.in/sites/upload_files/ddws/files/pdf/Modified_NBA_Guidelines_on_10_Dec_13_0.pdf> [accessed 2 February 2014].

Ministry of Health and Family Welfare (2010) *National Rural Health Mission – Operational Guidelines: Promotion of Menstrual Hygiene among Adolescent Girls (10–19 Year) in Rural Areas* [pdf] <http://indiasanitationportal.org/sites/default/files/Menstrual%20Hygiene_Operational%20Guideline_Eng_25-08-10.pdf> [accessed 2 February 2014].

Ministry of Health and Family Welfare (2014) *Rashtriya Kishor Swasthya Karyakram Strategy Handbook* [online] <www.nhp.gov.in/health-programmes/national-health-programmes/rashtriya-kishor-swasthya-karyakram-rksk> [accessed 2 February 2014].

Ministry of Human Resource Development (2011) *Sarva Shiksha Abhiyan Framework for Implementation, Based on the Right of Children to Free and Compulsory Education Act* [pdf] <http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/SSA-Frame-work.pdf> [accessed 2 February 2014].

Ministry of Women and Child Development (2010) *Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG): SABLA Implementation Guidelines* [pdf] <http://wcd.nic.in/schemes/SABLA-guidelines141210.pdf> [accessed 6 February 2014].

Narayan, K.A., Srinivasa, D.K., Pelto, P.J., and Veerammal, S. (2001) 'Puberty rituals, reproductive knowledge and health of adolescent schoolgirls in south India', *Asia-Pacific Population Journal* 16: 225–38.

Nemade, D., Anjenaya, S., and Gujar, R. (2009) 'Impact of health education on knowledge and practices about menstruation among adolescent school girls of Kalamboli, Navi-Mumbai', *Health and Population: Perspectives and Issues* 32: 167–75.

Omidvar, S. and Begum, K. (2010) 'Factors influencing hygienic practices during menses among girls from south India: a cross-sectional study', *International Journal of Collaborative Research on Internal Medicine & Public Health* 2: 411–23.

Pratham (2014) *Annual Status of Education Report (Rural) 2013* [pdf] <http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER_2013/ASER2013_report%20sections/aser2013fullreportenglish.pdf> [accessed 10 May 2013].

Copyright

Sinha, K. (2011) '70% can't afford sanitary napkins, reveals study', *Times of India* [online] <http://timesofindia.indiatimes.com/india/70-cant-afford-sanitary-napkins-reveals-study/articleshow/7344998.cms> [accessed 18 February 2014].

Sommer, M., Kjellén, M., and Pensulo, C. (2013) 'Girls' and women's unmet needs for menstrual hygiene management (MHM): the interactions between MHM and sanitation systems in low-income countries', *Journal of Water, Sanitation and Hygiene for Development* 3: 283 <http://dx.doi.org/10.2166/washdev.2013.101>.

Sumpter, C. and Torondel, B. (2013) 'A systematic review of the health and social effects of menstrual hygiene management', *PloS One* 8: 4 <http://dx.doi.org/10.1371/journal.pone.0062004>.

Water Aid India, Centre for World Solidarity (2012) 'Study on status of school sanitation in Andhra Pradesh', unpublished report.

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