

ORIGINAL ARTICLE

Conduct and Evaluate a Menstrual Hygiene Management Campaign (MHMC) among Adolescent Girls at Selected Schools in Deoghar

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HOW TO CITE THIS ARTICLE:

C Vasantha Kalyani, Veena T R, T. Dhakshayani. Conduct and Evaluate a Menstrual Hygiene Management Campaign (MHMC) among adolescent girls at selected Schools in Deoghar. RFP Jr. of Hosp. Admin.; 2025 9(1): 07-15.

ABSTRACT

Introduction: Menstruation is a typical biological process that occurs in adolescent girls and women, beginning with menarche and continuing until menopause. In India, a conspiracy of silence taboos and stigma surrounds the topic of menstruation which makes it a humiliating experience and also hinders the ability to practice safe menstrual hygiene. So this study was conducted to break the silence, build their knowledge, and change attitudes and practices towards menstruation. The study aims to evaluate the effectiveness of the Menstrual Hygiene Management Campaign (MHMC) on the knowledge, attitude, and practice of adolescents regarding Menstrual Hygiene Management.

Material and methods: A Quantitative research approach with one group pretest and post-test research design was adopted. A total of 282 adolescent girls (10-19 years age group) were selected using the Purposive sampling technique at the selected schools of Deoghar, Jharkhand. A Research tool consists of a Socio Bio Demographic & Menstrual Profile, a Structured Knowledge Questionnaire, a 3-point Likert's attitude Scale, and a Checklist for assessing practices on Menstrual Hygiene Management. Descriptive and inferential statistics were used for the data analysis by using SPSS version 20.0.

Result: The study findings show that out of 282 adolescent girls, a significant number of participants 210 (75%) attained menarche at the age of 13-15 years, and most participants 274 (97%) were using Sanitary pads and regarding the source of information on menstrual hygiene is from friends 160 (57%) and family members 108(38%). The knowledge, attitude, and practice scores were significantly improved

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➤ Received: 24-05-2025 ➤ Accepted: 25-06-2025



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after the menstrual hygiene management campaign. The mean knowledge score is raised from 7.29 ± 1.89 to 10.24 ± 1.18 ($t = -26.07$, $p < 0.001$), similarly attitude score is increased from 20.37 ± 3.05 to 32.99 ± 0.11 ($t = -69.49$, $p < 0.001$) and practice score is increased from 6.08 ± 2.30 to 8.99 ± 0.05 ($t = -21.24$, $p < 0.001$) which shows the effectiveness of the campaign.

Conclusion: A School-based menstrual hygiene management awareness campaign can play a vital role in promoting menstrual health.

KEYWORDS

• Adolescents • Knowledge • Attitude • Practice • Menstrual • Hygiene Management

INTRODUCTION

Moving from adolescence to womanhood is marked by a series of natural physiological changes. This period is marked by the onset of menarche.^{1,4} Due to the socio-cultural barriers in the societal environment many adolescent girls often lack knowledge regarding reproductive health including menstruation. The World Health Organization has defined adolescence as the period between 10-19 years of life and they constitute about 1/5th total female population in the world.

Despite this natural transition, menstruation remains a challenge for millions of adolescent girls globally, who are deprived of the sources and support to manage the menstrual health in a dignified and healthful manner. Menstrual Hygiene Management (MHM) has received particular attention from the World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) to ensure healthy and dignified Menstruation.^{1,2,5}

Perception of menstruation profoundly influences the hygienic practices during menstruation. Those women who have better knowledge can manage their bleeding safely, while poor hygiene can lead to infections, many reproductive health morbidities, school absenteeism, poor academic performance, lower self-esteem, and poor quality of life.⁶

Studies show restrictions on menstruating girls' daily activities, including bathing, changing clothes, and entering holy places, and dietary restrictions on certain foods, leading to anxiety and fear, potentially promoting poor practices.⁷

Millions of women in India were struggling

with formidable challenges to comfortable and dignified menstrual hygiene management due to taboos, lack of information, and myths surrounding menstruation. This prevents girls and women from expressing their needs and leads to poor menstrual hygiene management, which negatively impacts their health, education, and dignity.⁸

Menstruation related issues are often masked in silence, this prevents adolescent girls from understanding of this vital biological changes. As a result, managing menstrual hygiene among adolescent girls has appeared as a notable public health challenge for authorities in low and middle-income countries, including India.⁵

A Community-based cross-sectional study was conducted to assess the status of menstrual hygiene management (MHM). It was carried out among the rural adolescent girls at Ranchi, Jharkhand. The study concluded that MHM was not well observed among the rural adolescents which indicated the need for continuous flow of information to create awareness.⁹

Another study was conducted to assess the knowledge and practices regarding menstrual hygiene among adolescent girls in the rural areas of Jharkhand state. A total of 100 female adolescent girls were selected randomly for the study. The findings from this study indicate that there is inadequate knowledge regarding the biology of menstruation, the limited usage of sanitary napkins and the prevalence of menstruation related symptoms among the majority of girls. This study emphasizes the imperative need for adolescent girls to access accurate and comprehensive information regarding menstrual hygiene management.⁸

This is an important sanitation issue that has long been in the closet and still, there is a long standing need to openly discuss it.

Against this backdrop, this study aimed to evaluate the effectiveness of the Menstrual Hygiene Management Campaign on the Knowledge, attitude, and practice of adolescent girls regarding Menstrual Hygiene Management.

MATERIALS AND METHODS

Research Approach, Design & Setting: A quantitative research approach with one group pretest and post-test research design was adopted. The data was collected at two selected Government schools of Devipur, Deoghar District.

Study Participants and Sampling: The population comprises adolescent girls who were aged between 10-19 years.

Sampling Criteria:

Inclusion Criteria:

- Adolescent girls in the age group of 10-17 years
- Adolescent girls who are present on the day of data collection
- Adolescent girls who are willing to participate

Exclusion Criteria:

- Adolescent girls and/or the parents who refused to give consent
- Adolescent girls who have not attained menarche

The sample size was calculated with the assumption of a 95% Confidence Interval, a margin error of 5% (0.05), an assumed population proportion (p) of 0.5, and by adding a nonresponse rate of 50% as 280, and this number was rounded up to 282.

Data Collection Methods:

Before data collection, permission was obtained from the concerned authorities for conducting the study in the School. The subjects were selected according to the selection criteria of the study. After getting the written informed consent from the subjects, the research tools were administered to them. The Menstrual Hygiene Management Campaign (MHMC) was conducted through school-

based education sessions and community talks to raise awareness, break the taboos and myths surrounding menstruation, promote good hygiene practices, and have access to adequate Water, Sanitation, and Hygiene (WASH) facilities in the school for maintaining menstrual health among adolescents. On the 7th day, again data were collected by administering the same questionnaire to evaluate the effectiveness of the Menstrual Hygiene Management Campaign.

Description of the Data Collection Tool

A tool consists of 2 parts.

Part 1: Socio-demographic & Menstrual Profile:

Socio-demographic variables include age in years, religion, place of residence, education of mother and father, occupation of mother and father, type of family, and family income per month. The Menstrual profile includes age attained at menarche, a product used for periods, source of information about menstrual hygiene and products, the experience of usual menstruation, the usual number of days of menstrual flow, and any symptoms/problems associated with menstruation.

Part 2: A Structured Knowledge Questionnaire, 3 points Likert's Attitude Scale and Checklist for assessing practices related to Menstrual Hygiene Management.

A Structured Knowledge Questionnaire consists of 12 items. A correct answer scores one (1), and an incorrect answer scores zero (0).

The Attitude Questionnaire consists of 11 items to assess the attitude of adolescent girls on Menstrual Hygiene Management. A 3-point scale that is agree, neutral, and disagree with each statement was used.

The practice Questionnaire consists of 9 items to assess the practice of Menstrual Hygiene Management of adolescent girls with a Yes/No questionnaire.

Data collection tools were validated by the expert of the concerned Specialty.

Scoring interpretation

Categorization of Knowledge Questionnaire

0-4: Inadequate Knowledge

5-8: Moderate Knowledge

9-12: Adequate Knowledge

Categorization of Attitude Scale:

11-18: Poor Attitude

19-25: Neutral Attitude

26-33: Good Attitude

Categorization of Practice Tool:

0-4: Poor Practice

5-9: Good Practice

Ethical consideration:

Ethical approval was obtained from the Institution Ethics Committee (IEC) of AIIMS Deoghar. Permission was obtained from the concerned school authorities to conduct a Menstrual Hygiene Management campaign. The purpose and key components of an effective Menstrual Hygiene Management campaign were explained to the participants. Consent was obtained from the subjects, and confidentiality was maintained.

Data Analysis: The collected data were analyzed using SPSS Version 20.0. To describe sample characteristics, descriptive statistical methods such as frequency, percentages, mean, and standard deviation were used. Inferential statistics such as paired t-test was used to evaluate the effectiveness of the Menstrual Hygiene Management campaign and chi-square test was used to evaluate the association between pre-campaign scores and socio-demographic variables. $p < 0.05$ was considered statistically significant.

RESULTS

The majority of the participant's age is between 13-15 years 133 (47%) and 15-17 years 126 (45%). So the greater share of the participants (92%) is in the age group of 13-17 years, which corresponds with the average age of adolescence. More than half of the participants belonged to the Hindu religion 247 (88%), which is next followed by Muslims 35(12%). A major percentage of the participants are residing in rural areas 264 (94%), Most Participant's mothers had studied below class 10th 151 (54%), while 77 (27%) were illiterate, Likewise, the majority of the fathers had studied below class 10th 162 (57%), 50 (18%) had intermediate education. A greater percentage of participant's mothers main occupation status was homemakers 247 (88%), while 35 (12%) were working. But in the

contrary 254 (90%) of the fathers were working, while 28 (10%) were non-working. 144 (51%) of the families belongs to nuclear families, while 138 (49%) were joint families. The majority of the families (75%) had a monthly income below 10,000 (212 families), indicating low socioeconomic status (**Table 1**)

Table 1: Frequency and Percentage distribution of socio-demographic profile of the adolescent girls (N=282)

Demographic Variables	Frequency (f)	Percentage (%)
<i>Age in years</i>		
10-12	22	8
13-15	133	47
15 and above	126	45
<i>Religion</i>		
Hindu	247	88
Muslim	35	12
<i>Place of residence</i>		
Rural	264	94
Urban	18	6
<i>Education of mother</i>		
Illiterate	77	27
Below class 10th	151	54
Intermediate	31	11
Graduate	18	6
Post-graduate and above	5	2
<i>Education of father</i>		
Illiterate	41	15
Below class 10th	162	57
Intermediate	50	18
Graduate	20	7
Post-graduate and above	9	3
<i>Occupation of mother</i>		
Home maker	247	88
Working	35	12
<i>Occupation of father</i>		
Working	254	90
Non-working	28	10
<i>Type of family</i>		
Nuclear	144	51
Joint	138	49
<i>Family income per month</i>		
Below 10000	212	75
10001- 20000	45	16
20001- 30000	13	5
30001-40000	6	2

Most of the participants attained menarche 210 (74%) between the age of 13-15 years, majority of the participants 274(97%) were using sanitary pads as products during menstruation, 160 (57%) mentioned friends as a source of information regarding menstrual hygiene and products followed by 108(38%) through parents. A greater percentage of participants 226(80%) experience regular menstruation with 185 (66%) mentioning 3-5 days as a usual number of days of menstrual flow and most of them suffer from stomach pain 148(52%) as associated symptoms of menstruation (**Table 2**).

Table 2: Frequency and Percentage distribution of menstrual profile of Adolescent girls

Menstrual Variables	Frequency (f)	Percentage (%)
<i>Age attained menarche</i>		
10-12 years	69	25
13-15 years	210	74
16 and above	3	1
<i>Product used for periods</i>		
Cloths	8	3
Sanitary pads	274	97
Tampons	0	0
Menstrual cup	0	0
<i>Source of information about menstrual hygiene and products</i>		
Friends	160	57
Parents and family members	108	38
Newspaper and TV	8	3
Social media	6	2
<i>Experience of usual menstruation</i>		
Regular	226	80
Irregular	56	20
<i>Usual number of days of menstrual flow</i>		
>3 days	59	21
3-5 days	185	66
5-7 days	32	11
Above 7 days	6	2

Any symptoms / problems associated with menstruation

Please specify _____

No Symptoms	59	21
Stomach pain	148	52
Back Pain	63	22
Stomach & Back Pain	10	4
Nausea & Vomiting	2	01

A paired t-test was conducted to evaluate the effectiveness of the Menstrual Hygiene Management campaign on the Knowledge, Attitude, and Practice of adolescent girls on Menstrual Hygiene Management.

Pre campaign score shows that only 25.88% of participants had demonstrated adequate knowledge which was greatly increased to 98% after conducting the Menstrual Hygiene Management Campaign. The pre-test mean knowledge score was 7.29 ± 1.89 and it was increased to 10.24 ± 1.18 , with a mean difference of -2.94. This change was statistically significant ($t = -26.07$, $df = 281$, $p < 0.001$).

Similarly, a significant improvement was shown in participants' attitudes toward Menstrual Hygiene Management. Before conducting the campaign most of the participants had either neutral (72.3%) or poor (21.9%) and only 5.6% participants had good attitudes. The mean attitude score was increased from 20.37 ± 3.05 to 32.99 ± 0.11 ($t = -69.49$, $p < 0.001$).

The Practice score shows that before the campaign 45.7% exhibited poor practice and 54.2% exhibited good practice of Menstrual Hygiene Management. The Mean practice score was increased from 6.08 ± 2.30 to 8.99 ± 0.05 ($t = -21.24$, $p < 0.001$) (Table 3).

Overall, results revealed that the Menstrual Hygiene Management campaign had a statistically significant positive impact on improving the participants' knowledge level, attitude, and practice behaviors among adolescent girls.

Table 3: Comparison of pre-campaign and post-campaign knowledge, Attitude, and Practice scores of adolescents regarding Menstrual Hygiene Management

(N = 282)

Domain	Category	Pre test		Post Test		Mean difference (SD)	t-value	SE	Df	P-value
		Frequency (%)	Mean $\pm$ SD	Frequency (%)	Mean $\pm$ SD					
Knowledge	Inadequate	37 (13.1%)		0						
	Moderate	172 (60.99%)	7.29 $\pm$ 1.89	5 (2%)	10.24 $\pm$ 1.18	-2.94 (1.89)	-26.07	0.11	281	0.00*<0.001
	Adequate	73 (25.88%)		277 (98%)						

<i>Attitude</i>	Poor	62 (21.9%)		0							
	Neutral	204 (72.3%)	20.37±3.05	0	32.99±0.11	-12.62	-69.49	0.18	281	0.00*<0.001	
	Good	16 (5.6%)		282 (100%)							
<i>Practice</i>	Poor	129 (45.7%)		0							
	Good	153 (54.2%)	6.08 ±2.30	0	8.99±0.05	-2.91	-21.24	0.13	281	0.00*<0.001	

*Statistically significant p< 0.05

The chi-square test was used to find the association between pre-campaign knowledge level and selected Socio-demographic variables. Only a significant association was found between the place of residence and pre-campaign ($\chi^2 = 59.64$, $p = 0.00$) whereas

no significant association was found between other socio-demographic variables such as age in years, religion, education, and occupation of father and mother, type of family and family income per month at $p < 0.05$ level (Table 4).

Table 4: Association between pretest knowledge regarding menstrual hygiene and socio-demographic variables (N= 282)

Demographic Variables	Knowledge Level			χ^2 Value	p value
	Adequate	Inadequate	Moderate		
<i>Age in years</i>					
10-12	7 (2.48%)	4 (1.41%)	11 (3.90%)	4.401	0.62* <0.001
13-15	34 (12.05%)	18 (6.38 %)	81 (28.72 %)		
15-17	31 (10.99%)	15 (5.31 %)	80 (28.36 %)		
18 and above	1 (0.35 %)	0	0		
<i>Religion</i>					
Hindu	62 (21.98 %)	31 (10.99 %)	154 (54.60%)	1.566	0.45* <0.001
Muslim	11 (3.90 %)	6 (2.12 %)	18 (6.38 %)		
<i>Place of residence</i>					
Rural	73 (25.88 %)	24 (8.51 %)	167 (59.21%)	59.64	0.000* <0.001
Urban	0	13 (4.60 %)	5 (1.77 %)		
<i>Education of mother</i>					
Illiterate	23 (8.15%)	10 (3.54 %)	44 (15.60 %)	15	0.05* <0.001
Below class 10th	40 (14.18 %)	16 (5.67%)	95 (33.68 %)		
Intermediate	6 (2.12%)	7 (2.48%)	18 (6.38%)		
Graduate	4 (1.41%)	1 (0.35 %)	13 (4.62%)		
Post graduate and above	0	3 (1.06%)	2 (0.70%)		
<i>Education of father</i>					
Illiterate	11 (3.90 %)	3 (1.06%)	27 (9.57%)	4.27	1* <0.001
Below class 10th	40 (14.18 %)	23 (8.15%)	99 (35.10%)		
Intermediate	16 (5.67%)	5 (1.77%)	29 (10.28%)		
Graduate	4 (1.41%)	4 (1.41%)	12 (4.25%)		
Post graduate and above	2 (0.70%)	2 (0.70%)	5 (1.77%)		
<i>Occupation of mother</i>					
Home maker	67 (23.75%)	31 (10.99%)	149 (52.83%)	1.81	0.4* <0.001
If employee specify	6 (2.12 %)	6 (2.12 %)	23 (8.15%)		
<i>Occupation of father</i>					
Working, specify	66 (23.40%)	33 (11.70%)	155 (54.96%)	0.042	0.97* <0.001
Non-working	7 (2.48%)	4 (1.41%)	17 (6.02%)		
<i>Type of family</i>					
Nuclear	43 (15.24%)	21 (7.44%)	80 (28.36%)	3.7	0.15* <0.001
Joint	30 (10.63%)	16 (5.67%)	92 (32.64%)		
<i>Family income per month</i>					
Below 10000	52 (18.43%)	24 (8.51%)	136 (48.22%)	9.18	0.32* <0.001
10001- 20000	13 (4.60%)	8 (2.83%)	24 (8.51%)		
20001-30000	4 (1.41%)	4 (1.41%)	5 (1.77%)		
30001-40000	1 (0.35 %)	1 (0.35 %)	4 (1.41%)		
40001 and above	3 (1.06%)	0	3 (1.06%)		

*Statistically significant p< 0.05

DISCUSSION

Menstruation is a normal process but superstitious beliefs, myths, and taboos are surrounded by menstruation and menstrual practices. Menstrual hygiene practices have a long-standing impact on women's reproductive health. Hence menstrual hygiene management is considered to be very crucial. The present study aimed to evaluate the effectiveness of a menstrual hygiene management campaign on adolescent girl's knowledge, attitude, and practice of menstrual hygiene management.

The study findings showed that most of the participants aged 13-17 years belonged to the Hindu religion and were from rural areas. The menstrual profile of Adolescent girls shows that 74% of participants attained menarche between the ages of 13-15 years, followed by 25 % attained at 10-12 years. Most of them 97% used sanitary pads, a very few number 3% used cloths and no one reported using tampons or menstrual cups as menstrual products. 57% of participants reported that friends are the most common source of information, 38% reported that Parents and family members also played a significant role, and a small number 3% from newspapers and TV, 2% from social media. Around 80% of participants expressed that they are experiencing regular menses and only 20% experience irregular. 66% of participants disclosed that the usual flow duration is 3-5 days, 21% have more than 3 days, 11% a smaller percentage have 5-7 days and limited 2% had a menstrual flow of more than 7 days. About 21% reported no symptoms, the most common symptoms associated with menstruation were 52% stomach pain, 22% back pain, 4% experienced both stomach and back pain, and 1% reported nausea and vomiting.

The findings of the present study revealed that the mean pre-campaign knowledge score was 7.29 ± 1.89 , the pre-campaign attitude score was 20.37 ± 3.05 and the pre-campaign practice score was 6.08 ± 2.30 . In contrast to pre-campaign results, the post-campaign result reveals that the post-campaign knowledge score was 10.24 ± 1.18 , the post-campaign attitude score was 32.99 ± 0.11 , and the post-campaign practice score was 8.99 ± 0.05 . These findings suggest that following the campaign there was a notable increase in the knowledge, attitude, and practice of adolescent girls towards menstrual hygiene management.

The calculated t-test values for the Knowledge, attitude, and practice were as follows; knowledge = -26.07, attitude = -69.49, and practice = -21.24. Since the calculated t-values of knowledge, attitude, and practice were significantly greater than the tabulated value (± 2.58), it demonstrates that the menstrual hygiene management campaign had a statistically significant effect on improving the knowledge, shifting toward positive attitude, and promoting the practice of adolescent girls regarding menstrual hygiene management. There was no significant association found between the socio-demographic variables and pre-campaign knowledge score except for place of residence ($\chi^2 = 59.64$, $p = 0.000$).

Post-campaign findings exhibited a statistically significant improvement in terms of knowledge. This increase in knowledge follows a significant transformation towards a positive attitude. Menstruation was increasingly recognized as a natural process of women's health instead of something shameful or taboo. Participants reported self-confidence in discussing menstruation with friends and family members with less embarrassment.

About practice, the campaign brought actual changes in behavioral practices. The majority of the participants reported using and changing sanitary pads at regular intervals, maintaining perineal hygiene and safely disposing of the menstrual absorbents. These findings suggest that when adolescent girls are provided with accurate information they are capable of adopting healthier menstrual hygiene practices which promotes their reproductive health. Hence repeated and periodic menstrual hygiene campaigns are essential to promote healthy practices.

These findings are consistent with the previous studies a Pre-experimental one-group pre-post test was conducted to evaluate the effectiveness of a structured teaching program (STP) on knowledge and practices among adolescent school girls regarding menstrual hygiene at four government schools, in Nepal. The study result shows that the pre-test mean score for the level of knowledge was 13.36 ± 1.64 , whereas the post-test mean score was 15.8 ± 0.73 . Similarly, Practice related pre-test mean score was 10.66 ± 1.81 in comparison to, the post-test mean score of 13.34 ± 0.75 . No significant association was found between adolescents' knowledge of menstrual hygiene

and their socio-demographic variables. It is concluded that the Structured Teaching Program is an effective strategy to improve knowledge and practice regarding menstrual hygiene for adolescent girls.¹⁰

Likewise, a systematic review was conducted to assess the impact of various MHH interventions on knowledge, attitudes, and practices. A search of studies from 2000 to 2022 identified 10 relevant studies evaluating structured teaching programs, peer education, and community-based interventions. For instance, studies have shown that structured teaching interventions, which provide formal education in classroom or workshop settings, can significantly increase adolescent girls' knowledge, attitudes, and practices.¹¹

Similarly, a quasi-experimental pre-test and post-test design to investigate the impact of educational interventions, including school based programs, community workshops, and digital campaigns to improve knowledge, attitudes, and practices (KAP) related to menstrual hygiene practices among teenage girls aged 15–18 years at Karnataka. Results revealed a substantial improvement in understanding menstrual hygiene, with mean scores increasing from 55% pre-intervention to 85% post-intervention ($p < 0.01$). This indicates the effectiveness of the strategies in raising awareness and fostering better hygiene practices.¹²

STRENGTHS & LIMITATIONS

The strengths of this study were that the campaign had significantly ensured an increase in knowledge level and behavioral changes, which can lead to measurable improvements in menstrual hygiene practices. The campaign had built self-confidence; and reduced stigma, embarrassment, and negative perceptions among adolescents regarding menstrual hygiene management.

The study's limitations were that the campaign may not be able to reach out to school adolescents and the lack of WASH facilities in schools may limit the adolescent girls' to practice safe menstrual hygiene management.

RECOMMENDATIONS

- The same study may be conducted among a large sample to generalize the findings.

- A comparative study may be undertaken among rural and urban areas to identify the disparities in access to menstrual hygiene resources and support.
- Qualitative studies may be conducted to explore the cultural beliefs and emotional experiences of menstrual hygiene management.
- The same study may be conducted with different educational approaches.

CONCLUSION

In conclusion, the menstrual hygiene campaign had a significant effect on the knowledge, attitudes, and practices of adolescent girls. At the same time, the study draws attention to the need for periodic and continuous interventions to uphold these improvements. Menstrual hygiene management requires sustained attention, ongoing education, and ongoing support. Ongoing and repeated campaign integrated with community involvement highlights their impact over a significant period on menstrual health and dignity.

Conflict of Interest: The authors declare no conflict of interest of this study

Financial Disclosure: Self-funded

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