

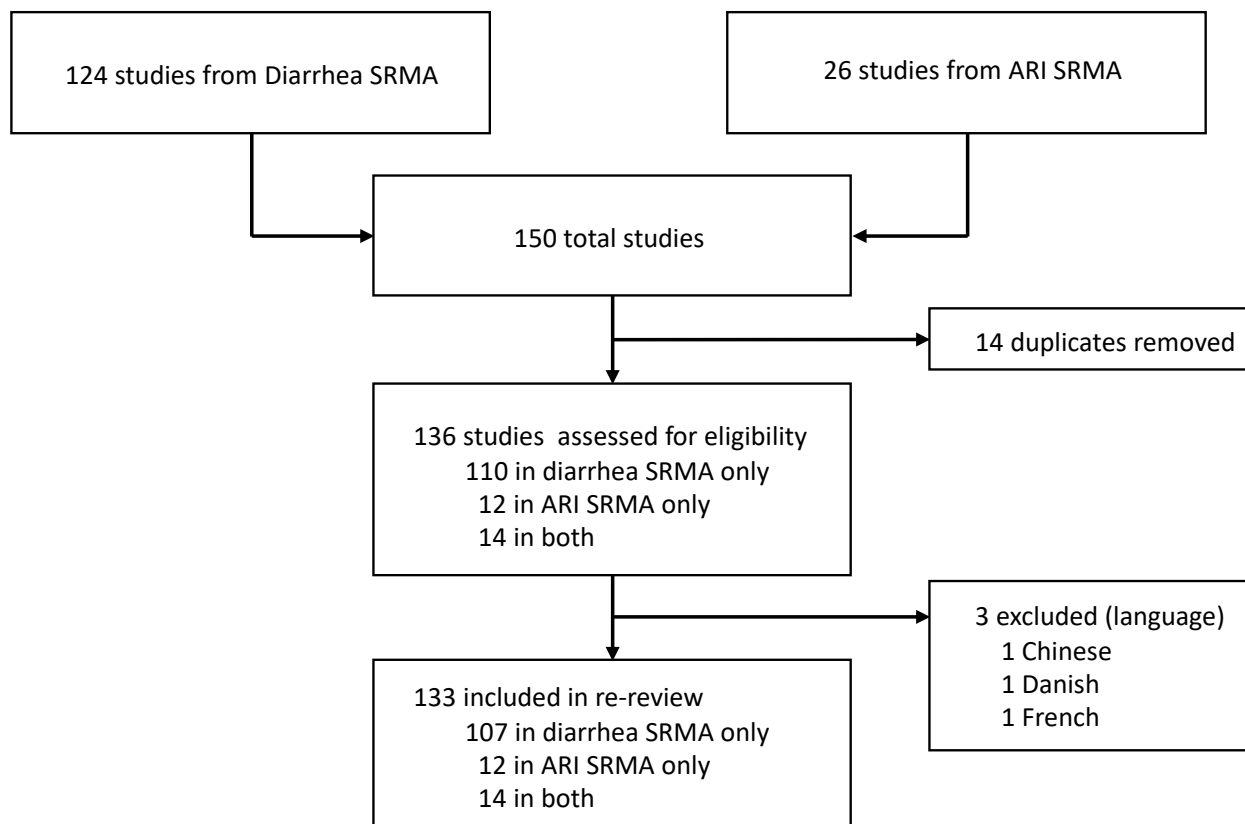
Systematic re-review of WASH trials to assess women's engagement in intervention delivery and research activities

In the format provided by the
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Supplementary Figure 1. Study Selection



Supplementary Table 1: Included Studies and Key Characteristics

Study ID	SRMA source ^a	Int. Focus ^b	Int. Type ^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities ^d	Individuals engaged for research activities ^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Ahmed 1993 ¹	D	H	H.0	Asia	No	W	W, W or M, C	Gender unequal	NA	NA	Gender unequal
Aiken 2011 ²	D	W	W.5	Latin America	Yes	UI	UI	Gender unaware	Gender unaware	NA	NA
Alam 1989 ³	D	W	W.4	Asia	No	W	W, UI	Gender unequal	Gender unequal	NA	NA
Arnold 2009 ⁴	D, ARI	W, H	W.5, H.0	Latin America	No	W	W, C, UI	Gender unequal	Gender unequal	NA	Gender unequal
Arnold 2010 ⁵	D	W, S, H	W.3, S.2, H.0	Asia	No	W, C, UI	W, C, UI	Gender unequal	Gender unaware	Gender unaware	Gender unequal
Ashraf 2020 ⁶	ARI	H	H.1	Asia	Yes	W, UI	W, UI	Gender unaware	NA	NA	Gender unaware
Austin 1993 ⁷	D	W	W.5	Africa	No	W	W, C, UI	Gender unequal	Gender unequal	NA	NA
Aziz 1990 ⁸	D	W, S	W.4, S.2	Asia	No	W	W	Gender unequal	Gender unequal	Gender unequal	NA
Azor-Martinez 2020 ⁹	D	H	H.1	Europe	No	C, OSI	OSI	Gender unaware	NA	NA	Gender unaware
Ban 2015 ¹⁰	D, ARI	H	H.1	Asia	No	C, OSI	OSI	Gender unaware	NA	NA	Gender unaware
Bartlett 1988 ¹¹	D	H	H.0	North America	No	OSI	C, OSI, UI	Gender unaware	NA	NA	Gender unaware
Begum 2020 ¹²	D	H	H.0	Asia	No	W	W	Gender unequal	NA	NA	Gender unequal
Bitew 2018 ¹³	D	W	W.5	Africa	No	W	W, UI	Gender unequal	Gender unequal	NA	NA

(Supplementary Table 1 Continued)

Study ID	SRMA source^a	Int. Focus^b	Int. Type^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities^d	Individuals engaged for research activities^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Black 1981 ¹⁴	D	H	H.0	North America	No	OSI	C, OSI	Gender unaware	NA	NA	Gender unaware
Boisson 2013 ¹⁵	D	W	W.5	Asia	No	UI	W, C, UI	Gender unaware	Gender unaware	NA	NA
Bowen 2007 ¹⁶	ARI	H	H.1	Asia	No	C, OSI	OSI	Gender unaware	NA	NA	Gender unaware
Briceño 2015 ¹⁷	D	S, H	S.2, H.1	Africa	No	W, UI	W, C, UI	Gender unequal	NA	Gender unaware	Gender unequal
Brown 2007 ¹⁸	D	W	W.5	Asia	Yes	UI	W, W or M, UI	Gender unaware	Gender unaware	NA	NA
Brown 2008 ¹⁹	D	W	W.5	Asia	Yes	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Brown 2013 ²⁰	D	W	W.3	Asia	No	None	W	NA	NA	NA	NA
Butz 1990 ²¹	D	H	H.0	North America	No	OSI	OSI	Gender unaware	NA	NA	Gender unaware
Carabin 1999 ²²	D	H	H.0	North America	No	OSI	C, OSI, UI	Gender unaware	NA	NA	Gender unaware
Cha 2015 ²³	D	W	W.4	Africa	No	W or M, UI	W, UI	Gender unaware	Gender unaware	NA	NA
Chard 2019 ²⁴	ARI	H	H.1	Asia	No	C, UI	C, OSI, UI	Gender unaware	NA	NA	Gender unaware
Chase 2012 ²⁵	D, ARI	H	H.0	Asia	No	W, OSI	W, C, OSI, UI	Gender unequal	NA	NA	Gender unequal
Chiller 2006 ²⁶	D	W	W.5	Latin America	No	W	W, UI	Gender unequal	Gender unequal	NA	NA
Chongsuviv-atwong 1994 ²⁷	D	W	W.3	Asia	No	None	W	NA	NA	NA	NA
Clasen 2004 ²⁸	D	W	W.5	Latin America	No	OSI, UI	UI	Gender unaware	Gender unaware	NA	NA

(Supplementary Table 1 Continued)

Study ID	SRMA source ^a	Int. Focus ^b	Int. Type ^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities ^d	Individuals engaged for research activities ^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Clasen 2005 ²⁹	D	W	W.5	Latin America	No	UI	UI	Gender unaware	Gender unaware	NA	NA
Clasen 2006 ³⁰	D	W	W.5	Latin America	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Clasen 2014 ³¹	D	S	S.2	Asia	No	UI	W, C, UI	Gender unaware	NA	Gender unaware	NA
Conroy 1996 ³²	D	W	W.5	Africa	No	C	W, OSI	Gender unaware	Gender unaware	NA	NA
Conroy 1999 ³³	D	W	W.5	Africa	No	W	UI	Gender unequal	Gender unequal	NA	NA
Crump 2005 ³⁴	D	W	W.5	Africa	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Devoto 2011 ³⁵	D	W	W.3	Africa	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Dickinson 2015 ³⁶	D	S	S.2	Asia	Yes	UI	W, M, C, UI	Gender unaware	NA	Gender unaware	NA
du Preez 2008 ³⁷	D	W	W.5	Africa	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
du Preez 2010 ³⁸	D	W	W.5	Africa	No	W	W, UI	Gender unequal	Gender unequal	NA	NA
du Preez 2011 ³⁹	D	W	W.5	Africa	No	W	W, C, UI	Gender unequal	Gender unequal	NA	NA
Ercumen 2015 ⁴⁰	D	W	W.1	Asia	No	None	W, C, UI	NA	NA	NA	NA
Ercumen 2015 ⁴¹	D	W	W.5	Asia	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Fabiszewski de Aceituno 2012 ⁴²	D	W	W.5	Latin America	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Fagerli 2020 ⁴³	D	W	W.5	Africa	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA

(Supplementary Table 1 Continued)

Study ID	SRMA source ^a	Int. Focus ^b	Int. Type ^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities ^d	Individuals engaged for research activities ^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Galiani 2009 ⁴⁴	D	W	W.3	Latin America	No	None	UI	NA	NA	NA	NA
Galiani 2015 ⁴⁵	D, ARI	H	H.0	Latin America	No	W, C, OSI, UI	W, C, UI	Gender unequal	NA	NA	Gender unequal
Garrett 2008 ⁴⁶	D	W, S	W.5, S.2	Africa	No	OSI, UI	W, W or M	Gender unaware	Gender unaware	Gender unaware	NA
Gasana 2002 ⁴⁷	D	W	W.4	Africa	No	UI	C, UI	Gender unaware	Gender unaware	NA	NA
Graf 2010 ⁴⁸	D	W	W.5	Africa	No	OSI, UI	W, UI	Gender unaware	Gender unaware	NA	NA
Gruber 2013 ⁴⁹	D	W	W.5	Latin America	No	OSI, UI	W, UI	Gender unaware	Gender unaware	NA	NA
Haggerty 1994 ⁵⁰	D	H	H.0	Africa	No	W, UI	UI	Gender unequal	NA	NA	Gender unequal
Hammer 2016 ⁵¹	D	S	S.2	Asia	No	UI	W, C	Gender unaware	NA	Gender unaware	NA
Han 1989 ⁵²	D	H	H.1	Asia	No	W, C	W	Gender unequal	NA	NA	Gender unequal
Harshfield 2012 ⁵³	D	W	W.5	Latin America	Yes	UI	W or M	Gender unaware	Gender unaware	NA	NA
Hartinger 2016 ⁵⁴	D, ARI	W, H	W.5, H.0	Latin America	No	W, UI	W, C, UI	Gender unequal	Gender unequal	NA	Gender unequal
Hashi 2017 ⁵⁵	D	H	H.1	Africa	No	W	W, UI	Gender unequal	NA	NA	Gender unequal
Hill 2020 ⁵⁶	D	W	W.5	Africa	No	W	W, C, UI	Gender unequal	Gender unequal	NA	NA
Huda 2012 ⁵⁷	D, ARI	H	H.0	Asia	No	UI	UI	Gender unaware	NA	NA	Gender unaware
Humphrey 2019 ⁵⁸	D, ARI	W, S, H	W.5, S.2, H.0	Africa	No	W, UI	W, C	Gender unequal	Gender unequal	Gender unequal	Gender unequal

(Supplementary Table 1 Continued)

Study ID	SRMA source ^a	Int. Focus ^b	Int. Type ^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities ^d	Individuals engaged for research activities ^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Hunter 2010 ⁵⁹	D	W	W.2	Latin America	No	OSI	UI	Gender unaware	Gender unaware	NA	NA
Hussam 2022 ⁶⁰	ARI	H	H.1	Asia	No	UI	W, C, UI	Gender unaware	NA	NA	Gender unaware
Iijima 2001 ⁶¹	D	W	W.5	Africa	No	W, UI	UI	Gender unaware	Gender unaware	NA	NA
Jain 2010 ⁶²	D	W	W.5	Africa	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Jensen 2003 ⁶³	D	W	W.4	Asia	No	OSI	W, UI	Gender unaware	Gender unaware	NA	NA
Kirby 2017 ⁶⁴	D	W	W.5	Africa	No	UI	W, OSI	Gender unaware	Gender unaware	NA	NA
Kirby 2019 ⁶⁵	D	W	W.5	Africa	No	UI	W, OSI	Gender unaware	Gender unaware	NA	NA
Kirchhoff 1985 ⁶⁶	D	W	W.5	Latin America	No	W	W, UI	Gender unequal	Gender unequal	NA	NA
Klasen 2012 ⁶⁷	D	W, S	W.3, S.1	Middle East	No	None	UI	NA	NA	NA	NA
Kolahi 2009 ⁶⁸	D	S	S.1	Middle East	No	None	W	NA	NA	NA	NA
Kotch 1994 ⁶⁹	D	H	H.1	North America	No	OSI	OSI	Gender unaware	NA	NA	Gender unaware
Kotch 2007 ⁷⁰	D	H	H.1	North America	No	OSI	OSI	Gender unaware	NA	NA	Gender unaware
Kremer 2009 ⁷¹	D	W	W.4	Africa	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Langford 2011 ⁷²	D	H	H.1	Asia	No	W, UI	W, C	Gender unequal	NA	NA	Gender unequal
Lee 1991 ⁷³	D	H	H.0	Asia	No	W, UI	W, OSI	Gender unequal	NA	NA	Gender unequal
Lindquist 2014 ⁷⁴	D	W	W.5	Latin America	No	W, UI	W	Gender unequal	Gender unequal	NA	NA

(Supplementary Table 1 Continued)

Study ID	SRMA source ^a	Int. Focus ^b	Int. Type ^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities ^d	Individuals engaged for research activities ^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Liu 2019 ⁷⁵	ARI	H	H.1	Asia	No	C, OSI, UI	C, OSI	Gender unaware	NA	NA	Gender unaware
Luby 2004 ⁷⁶	D	W, H	W.5, H.1	Asia	No	UI	W, W or M, UI	Gender unaware	Gender unaware	NA	Gender unaware
Luby 2004* ⁷⁷	D	H	H.1	Asia	No	UI	W, C, UI	Gender unaware	NA	NA	Gender unaware
Luby 2005* ⁷⁸	ARI	H	H.1	Asia	No	W, M, UI	W, C	Gender unequal	NA	NA	Gender unequal
Luby 2006 ⁷⁹	D	W, H	W.5, H.1	Asia	No	OSI, UI	W	Gender unaware	Gender unaware	NA	Gender unaware
Luby 2018 ⁸⁰	D	W, S, H	W.5, S.2, H.1	Asia	No	W, C, UI	W, C	Gender unequal	Gender unaware	Gender unequal	Gender unaware
Lule 2005 ⁸¹	D	W	W.5	Africa	No	UI	UI	Gender unaware	Gender unaware	NA	NA
Ma 2019 ⁸²	D	H	H.0	Africa	No	W, UI	W	Gender unequal	NA	NA	Gender unequal
Maeusezahl 2009 ⁸³	D	W	W.5	Latin America	No	W, UI	W, UI	Gender unequal	Gender unequal	NA	NA
Mahfouz 1995 ⁸⁴	D	W	W.5	Middle East	No	OSI	C, UI	Gender unaware	Gender unaware	NA	NA
Majuru 2011 ⁸⁵	D	W	W.4	Africa	No	None	W or M	NA	NA	NA	NA
Manaseki-Holland 2021 ⁸⁶	D, ARI	H	H.0	Africa	No	W, UI	W	Gender unequal	NA	NA	Gender unequal
Mangkla-keree 2014 ⁸⁷	ARI	H	H.0	Asia	Yes	C	C, OSI	Gender unaware	NA	NA	Gender unaware
McGuigan 2011 ⁸⁸	D	W	W.5	Asia	No	W, OSI	W, OSI, UI	Gender unequal	Gender unequal	NA	NA

(Supplementary Table 1 Continued)

Study ID	SRMA source ^a	Int. Focus ^b	Int. Type ^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities ^d	Individuals engaged for research activities ^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Mengistie 2013 ⁸⁹	D	W	W.5	Africa	No	W, UI	W, UI	Gender unaware	Gender unaware	NA	NA
Moraes 2003 ⁹⁰	D	S	S.1	Latin America	No	None	W	NA	NA	NA	NA
Morris 2018 ⁹¹	D	W	W.5	Africa	No	UI	W, C, UI	Gender unaware	Gender unaware	NA	NA
Morse 2020 ⁹²	D, ARI	H	H.0	Africa	No	W, UI	W	Gender unequal	NA	NA	Gender unequal
Najnin 2019 ⁹³	ARI	H	H.1	Asia	No	UI	UI	Gender unaware	NA	NA	Gender unaware
Nicholson 2014 ⁹⁴	D, ARI	H	H.1	Asia	No	W, C	W, UI	Gender unequal	NA	NA	Gender unequal
Null 2018 ⁹⁵	D	W, S, H	W.5, S.2, H.1	Africa	No	W, OSI, UI	W, C, UI	Gender unaware	Gender unaware	Gender unaware	Gender unaware
Opryszko 2010 ⁹⁶	D	W, H	W.5, H.1	Asia	No	W	W, W or M, UI	Gender unequal	Gender unequal	NA	Gender unequal
Patel 2012 ⁹⁷	D, ARI	H	H.1	Africa	No	C, OSI	W, C	Gender unaware	NA	NA	Gender unaware
Patil 2014 ⁹⁸	D	S	S.2	Africa	No	C, UI	W, C, UI	Gender unaware	NA	Gender unaware	NA
Pickering 2013 ⁹⁹	D, ARI	H	H.1	Africa	No	C, OSI	C, OSI	Gender unaware	NA	NA	Gender unaware
Pickering 2015 ¹⁰⁰	D, ARI	S, H	S.2, H.0	Africa	No	UI	W, C, UI	Gender unaware	NA	Gender unaware	Gender unaware
Pickering 2019 ¹⁰¹	D	W	W.2	Asia	No	OSI, UI	W, UI	Gender unaware	Gender unaware	NA	NA
Pinfold 1996 ¹⁰²	D	H	H.1	Asia	No	W, C, OSI, UI	W, UI	Gender unequal	NA	NA	Gender unequal
Pradhan 2002 ¹⁰³	D	S	S.1	Latin America	No	None	UI	NA	NA	NA	NA

(Supplementary Table 1 Continued)

Study ID	SRMA source ^a	Int. Focus ^b	Int. Type ^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities ^d	Individuals engaged for research activities ^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Quick 1999 ¹⁰⁴	D	W	W.5	Latin America	No	W, UI	W, W or M, C, UI	Gender unequal	Gender unequal	NA	NA
Quick 2002 ¹⁰⁵	D	W	W.5	Africa	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Rai 2010 ¹⁰⁶	D	W	W.5	Asia	No	W	UI	Gender unequal	Gender unequal	NA	NA
Ram 2015 ¹⁰⁷	ARI	H	H.1	Asia	No	UI	W, UI	Gender unaware	NA	NA	Gender unaware
Reese 2019 ¹⁰⁸	D	W, S	W.3, S.2	Asia	No	UI	W, C, UI	Gender unaware	Gender unaware	Gender unaware	NA
Reller 2003 ¹⁰⁹	D	W	W.5	Latin America	No	W	W, UI	Gender unequal	Gender unequal	NA	NA
Roberts 2000 ¹¹⁰	D	H	H.0	Oceania	No	C, OSI	C, OSI	Gender unaware	NA	NA	Gender unaware
Rose 2006 ¹¹¹	D	W	W.5	Asia	No	W	W	Gender unequal	Gender unequal	NA	NA
Ryder 1985 ¹¹²	D	W	W.3	Latin America	No	None	C, UI	NA	NA	NA	NA
Semenza 1998 ¹¹³	D	W	W.5	Europe	No	UI	UI	Gender unaware	Gender unaware	NA	NA
Shahid 1996 ¹¹⁴	D	H	H.1	Asia	No	W, M, UI	C, UI	Gender unaware	NA	NA	Gender unaware
Simmerman 2011 ¹¹⁵	ARI	H	H.1	Asia	No	UI	C, UI	Gender unaware	NA	NA	Gender unaware
Sinharoy 2017 ¹¹⁶	D	H	H.0	Africa	No	UI	W, C, UI	Gender unaware	NA	NA	Gender unaware
Sircar 1987 ¹¹⁷	D	H	H.1	Asia	No	C, UI	W, UI	Gender unaware	NA	NA	Gender unaware
Sobsey 2003 ¹¹⁸	D	W	W.5	Asia	No	UI	UI	Gender unaware	Gender unaware	NA	NA

(Supplementary Table 1 Continued)

Study ID	SRMA source ^a	Int. Focus ^b	Int. Type ^c	Study region	Sex-disaggregated outcome data reported	Individuals targeted for intervention activities ^d	Individuals engaged for research activities ^d	GRAS overall	GRAS water int.	GRAS san. int.	GRAS hygiene int.
Solomon 2020 ¹¹⁹	D	W	W.5	Africa	No	W	W, UI	Gender unequal	Gender unequal	NA	NA
Stanton 1988 ¹²⁰	D	H	H.0	Asia	No	OSI, UI	W, C, UI	Gender unaware	NA	NA	Gender unaware
Stauber 2009 ¹²¹	D	W	W.5	Latin America	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Stauber 2012 ¹²²	D	W	W.5	Africa	No	UI	UI	Gender unaware	Gender unaware	NA	NA
Stauber 2012 ¹²³	D	W	W.5	Asia	No	UI	W, UI	Gender unaware	Gender unaware	NA	NA
Swarthout 2020 ¹²⁴	ARI	H	H.1	Africa	Yes	W, UI	W, C	Gender unequal	NA	NA	Gender unequal
Talaat 2011 ¹²⁵	D, ARI	H	H.1	Middle East	No	C, OSI	C, OSI	Gender unaware	NA	NA	Gender unaware
Tiwari 2009 ¹²⁶	D	W	W.5	Africa	No	W	W, UI	Gender unequal	Gender unequal	NA	NA
Tonglet 1992 ¹²⁷	D	W	W.4	Latin America	No	None	W, UI	NA	NA	NA	NA
Trinies 2016 ¹²⁸	ARI	H	H.1	Africa	No	C, OSI, UI	C, OSI	Gender unaware	NA	NA	Gender unaware
Universidad Rafael Landivar 1995 ¹²⁹	D	W	W.5	Latin America	No	W, UI	W, C, UI	Gender unequal	Gender unequal	NA	NA
Walker 1999 ¹³⁰	D	S	S.2	Latin America	No	None	W, M, OSI, UI	NA	NA	NA	NA
Wang 1989 ¹³¹	D	W	W.3	Asia	No	None	None	NA	NA	NA	NA
Wilson 1991 ¹³²	D	H	H.1	Asia	No	W	W	Gender unequal	NA	NA	Gender unequal
Zomer 2015 ¹³³	D	H	H.1	Europe	No	OSI	OSI	Gender unaware	NA	NA	Gender unaware

Footnotes

- a. SRMA Source: D- Diarrhoea SRMA; ARI- Acute Respiratory Infection SRMA.
 - b. Intervention Focus: H- Hygiene; S- Sanitation; W- Water.
 - c. Intervention Type:
 - H.0- Promotion of handwashing without soap provision; H.1- Promotion of handwashing with soap provision;
 - S.1- Basic sanitation services without sewer connection; S.2- Basic sanitation services with sewer connection;
 - W.1- Improved, on premises, continuous supply; W.2- Improved on premises, higher WQ; W.3- Improved, on premises; W.4- Improved, not on premises;
 - W.5- Point-of-use treatment of water from unimproved water source or improved source not on premises.
 - d. Individuals in research and intervention activities: C- Children; M- Man, W- Woman; OSI- Other Specified Individual; UI- Unspecified Individual.
- *These two studies by Luby et al. report on the same intervention in two separate papers. These papers report on different health outcomes and were in different systematic reviews.

Supplementary Table 2: Examples of gender-unequal and gender-unaware water, sanitation, and hygiene intervention activities from included studies

	Gender unequal	Gender unaware
Water	To reduce childhood diarrhea, a solar drinking water disinfection intervention was implemented. In intervention households, field workers visited biweekly for a year to emphasize the use of solar disinfection. Mothers and primary caregivers were specifically targeted to integrate the water treatment into their daily life. Other promotion activities occurred with the entire community and primary schools on a less frequent basis (i.e., monthly and three times, respectively). ⁸³	To prevent child diarrhea, a household biosand filter intervention was implemented. Intervention households received concrete biosand filters, education on how to use and maintain the filter, and a five-gallon narrow mouth bottle and base that allowed water to filter directly into the container for safe storage. Some intervention households had two follow-up visits post-installation. ²
Sanitation	To reduce child stunting and anemia, independent and combined water, sanitation, and hygiene interventions were implemented. Women were enrolled in the study and scheduled to receive 15 behavior-change modules from village health workers over 12 months based on their 'treatment' group assignment (i.e., standard of care; infant and young child feeding; water, sanitation, and hygiene; infant and young child feeding plus water, sanitation, and hygiene). A sequential longitudinal intervention was also delivered, and reviewed modules with mothers monthly for six months. Household sanitation and hygiene infrastructure was also built and chlorine for water treatment was distributed. ⁵⁸	To prevent diarrhea, soil-transmitted helminth infection, and child malnutrition, India's Total Sanitation Campaign was delivered, combining social mobilization and a post-hoc latrine subsidy. The Government of India provided subsidies for the construction of latrines that met specified criteria in below-poverty-line households. Motivators in every village were trained to help mobilize the community as a whole. ³¹
Hygiene	To prevent childhood infections and growth faltering, a community-based handwashing program that targeted mothers was implemented. In intervention communities, the program was launched at a community meeting that included an interactive educational session, discussion, and short play. Then, community motivators conducted home visits with mothers to encourage the establishment of new handwashing routines for six months. Daily visits were conducted for two weeks, and then decreased in frequency until the mothers were visited just once or twice a week. Group meetings were also held for mothers in each study area every two weeks to promote handwashing behaviors and distribute new bars of soap. ⁷²	To prevent childhood diarrhea, an intervention to promote handwashing with soap after defecation and before preparing food, eating, and feeding a child was implemented. Field workers from local communities conducted weekly neighborhood meetings about handwashing for approximately one year, using slideshows, videotapes, and pamphlets. Field workers encouraged all household members who were old enough to understand to wash their hands at key times and provided soap to families, as needed. ⁷⁷

Supplementary Table 3: Prisma Checklist for Abstracts

Section and Topic	Item #	Checklist item	Reported (Yes/No)
TITLE			
Title	1	Identify the report as a systematic review.	Y
BACKGROUND			
Objectives	2	Provide an explicit statement of the main objective(s) or question(s) the review addresses.	Y
METHODS			
Eligibility criteria	3	Specify the inclusion and exclusion criteria for the review.	Y
Information sources	4	Specify the information sources (e.g. databases, registers) used to identify studies and the date when each was last searched.	Y
Risk of bias	5	Specify the methods used to assess risk of bias in the studies included.	NA; bias assessed in source systematic reviews
Synthesis of results	6	Specify the methods used to present and synthesise results.	Y
RESULTS			
Included studies	7	Give the total number of included studies and participants and summarise relevant characteristics of studies.	Y
Synthesis of results	8	Present results for main outcomes, preferably indicating the number of included studies and participants for each. If meta-analysis was done, report the summary estimate and confidence/credible interval. If comparing groups, indicate the direction of the effect (i.e. which group is favoured).	Y
DISCUSSION			
Limitations of evidence	9	Provide a brief summary of the limitations of the evidence included in the review (e.g. study risk of bias, inconsistency and imprecision).	Y
Interpretation	10	Provide a general interpretation of the results and important implications.	Y
OTHER			
Funding	11	Specify the primary source of funding for the review.	Y
Registration	12	Provide the register name and registration number.	Y

Supplementary Table 4: Prisma Checklist for Reviews

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Y
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	See Supplementary Table
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Introduction body
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Introduction: <i>final paragraph</i>
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Methods: <i>Inclusion criteria and eligibility</i>
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Methods: <i>Inclusion criteria and eligibility</i>
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Methods: <i>Inclusion criteria and eligibility</i>
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Methods: <i>Inclusion criteria and eligibility</i>
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Methods: <i>Data extraction</i>
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Methods: <i>Data extraction</i>
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Methods: <i>Data extraction</i>
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	NA
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	NA

Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Methods: <i>Data extraction</i>
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	NA
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Methods: <i>Analysis</i>
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Methods: <i>Analysis</i>
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	NA
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	NA
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	NA
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	NA
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Results: <i>paragraph 1</i> ; Supplementary Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Results: <i>paragraph 1</i> ; Supplementary Figure 1
Study characteristics	17	Cite each included study and present its characteristics.	Supplementary Table 3
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	NA
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Tables 1,2, & 3 Supplementary Table 4 & 5
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	NA
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Tables 1,2, & 3 Supplementary Table 4 & 5
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	NA
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	NA

Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	NA
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	NA
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Discussion, paragraph 1
	23b	Discuss any limitations of the evidence included in the review.	Discussion, last paragraph
	23c	Discuss any limitations of the review processes used.	Discussion, last paragraph
	23d	Discuss implications of the results for practice, policy, and future research.	Discussion, throughout
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Methods: paragraph 1
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Methods: paragraph 1
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	NA
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Methods: <i>Role of funder</i>
Competing interests	26	Declare any competing interests of review authors.	Will be noted in separate 'Declaration of interests' Section
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Will be included as supplements and/or posted on OSF

Supplementary Text 1: Reflexivity Statement

The training and experience of the authors have informed this re-review. Specifically, all authors have experience—be it training, research, practice, or a combination thereof—in both water, sanitation and hygiene (WASH) and public health. Indeed, it is this shared WASH-public health lens that informed the specific scope of the re-review and the methodological approach for carrying it out. We acknowledge that we are all at institutions based in high income countries, which may have shaped our lens. Several of the authors bring additional expertise that has informed this re-review, as outlined below.

Several of the co-authors have co-authored other WASH and/or health- related systematic reviews, informing the overall approach to this re-review (AB, BC, OC, MP, IR, JS, SS, JW).

Some of the authors co-authored one or both of the systematic reviews from which the papers re-reviewed herein were sampled. This involvement was critical in shaping our understanding of critical gaps in these systematic reviews and in informing the portion of the analysis that engaged the exposure scenarios. Specifically, BC, OC, and JW were co-authors on the systematic review that assessed the effectiveness of water, sanitation, and handwashing with soap interventions on diarrheal disease (JW was lead author),¹ and OC and JW were co-authors on the systematic review that assessed the effectiveness of handwashing with soap for preventing acute respiratory infections.²

Some of the authors also have been engaged in large scale randomized control trials that have sought to understand the impact of WASH interventions (BC, OC, SS) on health and health-related behavioral outcomes, like those included in the analysis sample for this re-review. In fact, OC and SS are authors on some of the studies examined in this re-review. Involvement in these and similar trials provided insight regarding data collection, and therefore informed and inspired the need to assess how individuals are engaged in both intervention delivery and data collection.

Several of the authors bring experience carrying out research at the intersection of gender, WASH, and health (AB, BC, MP, IR, SS), and some bring experience in gender that extends beyond WASH and health (IR, SS). The experience examining gender in the context of WASH and health informed the use of the WHO Gender Responsiveness Assessment Scale, and the study's framing in the introduction and the findings in the discussion.

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2. Ross I, Bick S, Ayieko P, et al. Effectiveness of handwashing with soap for preventing acute respiratory infections in low-income and middle-income countries: a systematic review and meta-analysis. *The Lancet* 2023.

Supplementary References 1. Full Citations for All Included Studies

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