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## **Appendix**

### **Search Strategy and Selection Criteria**

In November 2018 we conducted a search of five major databases: MEDLINE/Pubmed, CINAHL, PsychINFO, Web of Science, and Cochrane Library. A broad search strategy was used including combinations of keywords and/or MeSH terms for the three key terms “HIV”, “stigma” and “intervention”. Limitations were set to studies published between 2010-2018, English language, and abstract and full text availability. For Web of Science, the search was limited to keywords in the title, for Pubmed it was limited to keywords in title and/or abstract, and for CINAHL; major heading keywords (see Table 1 and Table 2 for a complete search strategy). For the nine systematic reviews identified, the reference lists were examined for relevant studies.

After removing duplicates, three reviewers (AME, GZA and MR) divided and screened all titles for obvious exclusions. Six reviewers (LEE, VS, DG, KD, FME, GWL) screened records based on the material provided in the abstracts and ten reviewers (AME, LEE, GZA, MR, VS, FME, KD, DR, GWL, DG) screened selected records in full text. Inclusion criteria were studies that included: 1.) A study population including people living with HIV; 2.) an intervention aimed to reduce HIV stigma and/or discrimination; and 3.) an assessment of the effect of the intervention in terms of self-experienced stigma among people living with HIV.

### **Data Extraction**

The following information was extracted from each study: authors, year, sample size, methods, participants, interventions, outcomes and findings. MR and AME made a second read-through to assess fulfilment criteria of selected papers and evaluated papers that co-authors disagreed on whether to include or not.

### **Risk of Bias Assessment**

Risk of bias in included articles was assessed (by AME, LEE, MR, GZA) with validated quality assessment tools. Different tools were used depending on design; for randomized controlled trials (RCTs) and cluster randomized studies, we used the National Institutes of Health (NIH) tool *Quality assessment of controlled randomized trials*<sup>1</sup> and studies with pre-post designs were assessed with the NIH tool *Quality assessment tool for Before-After (Pre-Post) studies with no control group*.<sup>2</sup> Qualitative studies were assessed using a checklist designed and recommended by the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU)<sup>3</sup> (Table 3).

### **Study Selection Process**

A total of 3,450 records were identified in the search of databases (Figure 1). Eighteen additional records were identified through the reference lists of earlier reviews on the topic (n=18) or suggested by co-authors (n=2).<sup>4,5</sup> After duplicates were removed, 3265 records remained. 3004 titles were excluded based on screening of titles. 167 records were excluded based on abstracts. Finally, 94 records were screened in full-text and 27 of these were found to match our inclusion criteria and were included in a qualitative synthesis (Table 2).

**Table 1. Search Strategy for Electronic Databases**

<p>Pubmed 2018-11-06</p> <p>Filter: Published 2010-2018 Text availability: Abstract, fulltext Language: English Species: Human</p>	1	HIV[MeSH]	27453
	2	HIV[tiab]	117799
	3	AIDS[MeSH]	6105
	4	AIDS[tiab]	39940
	5	"human immunodeficiency virus"[tiab]	25009
	6	"human immunodeficiency syndrome"[tiab]	32
	7	"Acquired immunodeficiency syndrome"[tiab]	2104
	8	1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7	87448
	9	"social stigma"[MeSH]	5756
	10	stigma*[tiab]	18715
	11	discrimin*[tiab]	110271
	12	stereotyp*[tiab]	8972
	13	prejud*[tiab]	2580
	14	marginal*[tiab]	40423
	15	exclu*[tiab]	206565
	16	isola*[tiab]	399861
	17	9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16	346240
	18	intervention*[tiab]	497878
	19	"health education"[tiab]	10320
	20	counselling[tiab]	10683
	21	psychoeducational[tiab]	970
	22	workshop[tiab]	10669
	23	program[tiab]	170948
	24	project[tiab]	70960
	25	18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24	440940
	26	8 AND 17 AND 25	2712
<p>Web of science 2018-11-06 TI= Title Year 2010-</p>		TI= ((HIV OR AIDS OR "human immunodeficiency virus" OR "human immunodeficiency syndrome" OR "acquired immunodeficiency syndrome") AND (stigma* OR discrim* OR stereotyp* OR prejud* OR marginal* OR exclu* OR isola*)) AND (intervention OR "health education" OR counselling OR psychoeducational OR workshop OR program OR project))	90
<p>PsycINFO via OVID 2018-11-06</p> <p>Limits: Published 2010- Humans Full text English</p>		(HIV OR AIDS OR human immunodeficiency virus OR human immunodeficiency syndrome OR acquired immunodeficiency syndrome) AND (stigma OR discrimination OR stereotyping OR prejudice OR marginalization OR exclusion OR isolation) AND (intervention OR health education OR counselling OR psychoeducational OR workshop OR program OR project)	408
<p>Cochrane library 2018-11-06</p> <p>Limits: Published 2010-</p>		stigma AND hiv AND intervention	4 cochrane reviews 236 clinical trials
<p>CINAHL 2018-11-12</p> <p>Limits: Research Article; Peer Reviewed; Abstract Available; Published Date: 20100101-; English Language; Language: English; Exclude MEDLINE records; Human Search modes - Boolean/Phrase</p>	1	MW hiv OR MW aids/hiv OR MW ( human immunodeficiency virus and acquired immunodeficiency syndrome )	4,985
	2	MW stigma OR MW ( stigma or prejudice or attitude or discrimination ) OR MW hiv stigma	13,592

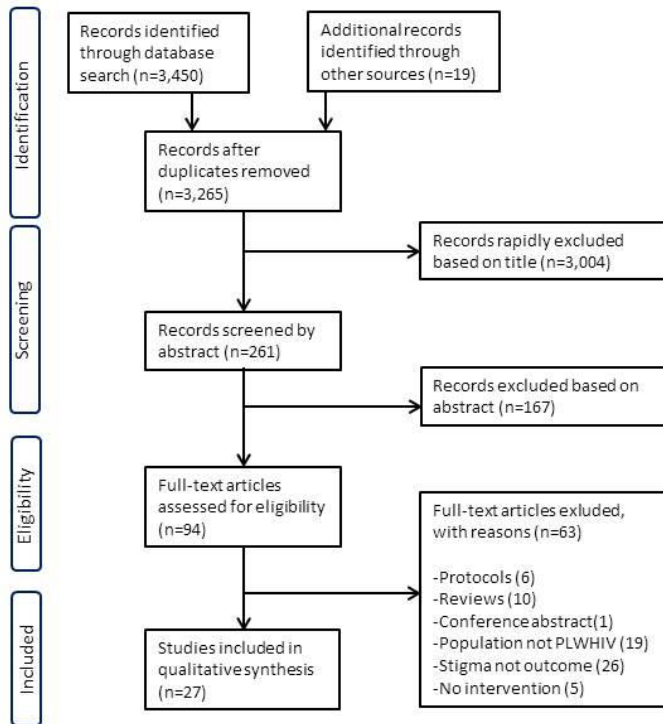
	3	MW intervention OR MW health education OR MW psychoeducational	5,554
		1 AND 2 AND 3	22

**Table 2. Keywords Used in Other Reviews**

<p>Exact keywords not provided. HIV (MeSH) and other associated terms Combined with “stigma reduction” OR “discrimination reduction”</p>	<p>Stangl, A. L., et al. (2013). "A systematic review of interventions to reduce HIV-related stigma and discrimination from 2002 to 2013: how far have we come?" <i>J Int AIDS Soc</i> <b>16</b>(3 Suppl 2): 18734.</p>
<ul style="list-style-type: none"> <li>• <i>Stigma</i>: stereotyping OR shame OR social isolation OR stigma OR social distance OR discrimination OR prejudice OR fear OR stigma reduction</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>• <i>HIV/AIDS</i>: "HIV Infections/prevention and control" OR HIV OR AIDS</li> </ul> <p>AND</p> <p>Interventions: intervention OR program OR evidence-based OR health education.</p>	<p>Sengupta, S., et al. (2011). "HIV interventions to reduce HIV/AIDS stigma: a systematic review." <i>AIDS Behav</i> <b>15</b>(6): 1075-1087.</p>
<p><b>PsycINFO</b></p> <hr/> <p>(Anti-stigma.mp. OR anti stigma.mp. OR stigma reduction.mp. OR attitude change.mp. OR exp Attitude Change/ OR attitud* change.mp. OR behavior* change.mp. OR exp Behavior Change/ OR behaviour* change.mp. OR exp "AIDS (Attitudes Toward)") AND (exp HIV/ or hiv.mp. OR Human immunodeficiency virus.mp. OR aids.mp. OR exp AIDS/ OR Acquired immune deficiency syndrome.mp.)</p> <hr/> <p><b>Medline</b></p> <hr/> <p>(anti stigma.mp. OR anti-stigma.mp. OR stigma reduction.mp. OR attitude change.mp. OR attitud* change.mp. OR behavior* change.mp. OR behaviour* change.mp.) AND (hiv.mp. or HIV/ OR Human immunodeficiency virus.mp. OR Acquired Immunodeficiency Syndrome/ OR aids.mp.)</p> <hr/> <p><b>ERIC and Sociological Abstracts</b></p> <hr/> <p>((anti-stigma) OR (anti within 2 stigma) OR (stigma within 2 reduction) OR (behavior* within 2 change) OR (behaviour* within 2 change) OR (attitude within 2 change) OR (attitud* within 2 change)) AND ((HIV) OR (Human immunodeficiency virus) OR (AIDS) OR (Acquired immune deficiency syndrom))</p>	<p>Mak, W. W. S., et al. (2017). "Meta-analysis and systematic review of studies on the effectiveness of HIV stigma reduction programs." <i>Soc Sci Med</i> <b>188</b>: 30-40.</p>
<p><b>HIV/AIDS</b> HIV Infections OR “HIV” or “human immunodeficiency syndrome” OR “Acquired Immune Deficiency Syndrome” OR “Acquired Immunodeficiency Syndrome”</p> <p><b>Stigma/Discrimination</b> Stigma OR HIV stigma, or racism OR sexism OR homophobia OR intersectional stigma OR intersectionality OR stereotyping OR shame OR discrimination OR prejudice OR fear OR stigma reduction OR marginalization OR exclusion OR isolation</p> <p><b>Intervention</b> Intervention OR experiment OR randomized control trial OR quasi experimental OR Observational OR Cohort OR Cross-sectional OR CaseControl OR Pre-test OR Post-test OR study OR program OR project OR workshop OR evidence based OR health education OR counselling OR therapy OR support OR coping OR mass media OR communication OR multimedia OR policy OR training OR advocacy OR legal OR health care OR psychoeducational</p>	<p>Loutfy, M., et al. (2015). "Systematic review of stigma reducing interventions for African/Black diasporic women." <i>J Int AIDS Soc</i> <b>18</b>: 19835.</p>

**Table 3. Quality Ratings of Selected Studies, per Study Design**

		Quality rating			
	First author, year	Good	Fair	Poor	Comment
Randomized controlled trials	Barosso, 2014 <sup>6</sup>	X			
	Bhana, 2014 <sup>7</sup>		X		Pilot study
	Bhatta, 2017 <sup>8</sup>	X			
	Bogart, 2017 <sup>9</sup>		X		No power analysis reported, selective reporting (multivariate analysis including stigma not reported)
	DeMarco, 2013 <sup>10</sup>	X			
	Masquillier, 2015 <sup>11</sup>		X		RCT described more in detail in other publication (full text not found)
	Nyamathi, 2013 <sup>12</sup>		X		Pilot Study
	Rongkavilit, 2015 <sup>13</sup>		X		Pilot Study
Pre-post design	Simoni, 2015 <sup>5</sup>	X			
	Van Tam, 2012 <sup>14</sup>		X		No power analysis reported
	Adam, 2011 <sup>15</sup>			X	
	Batey, 2016 <sup>16</sup>			X	
	Chidrawi, 2016 <sup>17</sup>			X	Same study as Chidrawi 2015, but reports stigma outcomes
	Farber, 2014 <sup>18</sup>			X	
	Harper, 2014 <sup>19</sup>		X		Include instead of Hosek, same study
	Moitra, 2015 <sup>20</sup>			X	
Qualitative design	Neema, 2012 <sup>21</sup>			X	
	Rao, 2012 <sup>4</sup>		X		
	Smith Fawsi, 2012 <sup>22</sup>		X		
	French, 2014 <sup>23</sup>			X	Should be included despite low quality due to the extensive and broad nature of the intervention (PLHIV; their families; communities)
quasi experimental design	Lowther, 2018 <sup>24</sup>	X			
	Mburu, 2013 <sup>25</sup>	X			
	Salman, 2015 <sup>26</sup>		X		
Mixed methods	Nambiar, 2011 <sup>27</sup>			X	Radio intervention , assessed retrospectively, no control group
	Okello, 2013 <sup>28</sup>			X	Very big study, but multiple outcomes, broad intervention, not so clearly defined
Mixed methods	Li, 2018 <sup>29</sup>	X			
	Prinsloo, 2017 <sup>30</sup>		X		
<b>Total</b>		7	11	9	27



**Figure 1. PRISMA flowchart of review process**

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