A Synthesis Report Analyzing Menstrual Hygiene Management Within a Humanitarian Crisis

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Abstract: The United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA) releases Humanitarian Response Plans (HRPs) annually to share their approach in tackling the "assessed and expressed needs" of a country related to a humanitarian crisis. Dimensions such as logistics, health- and/or safety- related responses are highlighted in the HRPs; however, gendersensitive aspects, such as women's health, are often overlooked. One key aspect that is relatively under-reflected in the HRPs is Menstrual Hygiene Management (MHM), which is the ability to manage menstruation safely and confidently. This aspect is also central to achieving gender-related Sustainable Development Goals (SDGs), especially SDG 5, which focuses on women's health andthe related socio-economic and psychosocial outcomes. Negative consequences of poor MHM practices may include reproductive tract infections and skin irritation, as well as stress and diminished dignity. In the presence of a crisis, such consequences are further aggravated due to geographical displacement. Currently, the HRPs lack a universal policy around the provision of MHM in a humanitarian context. This synthesis aims to identify the gaps within the HRPs published by UN-OCHA during the years 2016-2018 and explores the extent of the distribution of dignity kits in a humanitarian crisis.

The UN-OCHA HRP documents published between 2016 and 2018 were retrieved from the UN-OCHA Humanitarian Response database. A search strategy for MHM-related products including dignity kits as well as other kits that may or may not contain MHM-related products (i.e., water, sanitation & hygiene (WaSH) kits; non-food items (NFI) kits) was employed. Notably, in 2016, 31% of HRPs from African countries and 40% of HRPs from Asian countries explicitly mentioned dignity kits. In 2017, we found that only 33% of HRPs from African and 100% of HRPs from Asian countries mentioned dignity kits whereas in 2018, it was 50% of HRPs from African and 67% of HRPs from Asian countries. There was also a temporal and spatial variation in the number of countries that mentioned MHM-related terms including dignity kits. Overall, only a few countries have adopted dignity kits to address women's unique needs in a humanitarian context, others intend to address this topic through WASH and/or NFI kits, and some do not address MHM at all. The lack of universal policy surrounding the implementation of MHM in a crisishas implications not only for women's health and dignity, but also for a country's progress towards the related SDG targets.

Keywords: Dignity Kits, Menstrual Hygiene Management, Sustainable Development Goals, Women's Health

Introduction

enstruation is a physiological process that occurs monthly among healthy adolescent girls and premenopausal adult women (House, Mahon, & Cavill, 2013; Sumpter & Torondel, 2013). The age of menstruation variesdue to both genetic and environmental factors, including women's geographical location, race and ethnicity (House et al., 2013; Sumpter & Torondel, 2013). Approximately 26% of the world's population menstruates and requires proper menstrual hygiene management (MHM) in order to meet their needs(House et al., 2013). In the context of the association between MHM and water availability and access, MHM is defined as "women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as necessary for the duration of the menstruation period, using soapand water for washing the body as required, and having access to facilities to dispose of used menstrual management materials" (Budhathoki et al., 2018). Furthermore, effective MHM involves awareness and confidence for women to manage their menstruation with safety, privacy and dignity (Global Protection Cluster, 2015). MHM is vital for women and girls to be healthy and productive members of society and is critical towards women's contribution to human development. Variation exists in MHM approaches between and within countries, and it is highly dependent on factors such as women's preferences, their economic status, traditional and cultural beliefs, education, and the resources available to them (Sumpter & Torondel, 2013). The role of water availability and accessfor proper MHM deployment is vital because water is crucial for effective sanitation practices. Thus, a lack thereof can lead to detrimental effects on women's health(Nagabhatla & Avellán, 2019).

Poor MHM has been associated with physical reproductive diseases as well as psychosocial issues. In particular, reproductive tract infections (RTI) are common and have been found associated with the usage of unhygienic absorbent products such as improperly washed reusable cloths(Sumpter & Torondel, 2013). Consequently, the importance of access to water and sanitation in effective MHM is pertinent for women and girls' health. In addition, poor MHM has also been linked to an increased transmission of sexually transmitted infections. For example, when adolescent girls and women are unable to buy proper sanitary products, they may resort to exchanging sex for sanitary products (Hennegan, Shannon, Rubli, Schwab, & Melendez-Torres, 2019). This can also lead to unplanned pregnancies whereby young girls are forced into leaving school and are unable to climb the socio-economic ladder in society (Hennegan et al., 2019). As well, adolescent girls may be precluded from attending school due to poor MHM (Miiro et al., 2018). Besides physical health, psychosocial well-being is also affected by poor MHM (Hennegan & Montgomery, 2016; Hennegan et al., 2018). Feelings such as shame, embarrassment and stress may stem from a lack of access to proper MHM (Das, Baker, & Torondel, 2015). The reverse relationship also exists as the psychosocial environment influences MHM awareness and practices among women and girls (Sumpter & Torondel, 2013). Access to educational programmes can impact preparation of adolescent girls for addressing menstruation including MHM practices (Sumpter & Torondel, 2013). Overall, meeting women and girls' MHM needs is connected to health, gender, education, water and sanitation.

Achieving MHM is also imperative to attaining multiple Sustainable Development Goals (SDGs) and thus, the targets of the 2030 Agenda for Sustainable Development(WASH United & Simavi, 2017). For example, a lack of MHM has implications for SDG 3 (Healthy Lives and Wellbeing); specifically including but not limited to, target 3.7 ("to achieving universal access to sexual and reproductive health-case services") (United Nations, 2019). However, the focus of target 3.7 is on family planning and education, and lacks addressing woman's health and menstruation (United Nations, 2019). Furthermore, MHM is also related to SDG 5 (Gender Equality) due to its disproportionate effects on women and adolescent girls, and includes target 5.5 ("ensuring full participating in leadership and decision making") as well as target 5.6 ("universal access to reproductive rights and health")(United Nations, 2019). Finally, achieving MHM is highly relevant towards achieving SDG 6 (Water and Sanitation) as target 6.2 aims to provide universal access to sanitation. Indeed, in the case of MHM, vulnerable populations, such as young girls and women are the most affected(William, 2017).MHM-related goals also echo with the theme of "leaving no one behind" of the World Water Development Report 2019(Nagabhatla & Avellán, 2019). This chapter elucidates that in 2015, only two of out five people globally had access to safely-managed sanitation services and thus, points to the lack of MHM aspects in a traditional sanitation context(Nagabhatla & Avellán, 2019). In addition, the chapter emphasizes that women's reproductive and sexual health needs are not being fully met in many countries and in turn, women and girl's well-being willbe affected as they will bear the burden (Nagabhatla & Avellán, 2019).

Provision of MHM is a persisting challenge particularly for communities living in vulnerable situations. The presence of a humanitarian emergency worsens these conditions, and can further decrease accessibility to basic needs (House et al., 2013). The Humanitarian Coalition, a platform that brings Canada's leading aid agencies to lead

relief efforts internationally, defines humanitarian emergency as "events that pose a serious threat to the health, safety, security or well-being of a large group of people, usually over a wide area" (Humanitarian Coalition, 2018). Humanitarian crises usually affect marginalized populations the most, such that they are unable to endure the negative impact of a crisis without external support (Hennegan, Dolan, Wu, Scott, & Montgomery, 2016). At the end of 2018, more than 70 million people globally were displaced from their homes as a consequence of war, conflict and violation of human rights (USA for UNHCR, 2018). Although the exact proportion of women suffering from the negative outcomes of poor MHM in a humanitarian emergency context is unknown, certain displaced populations, such as the Rohingya population, primarily consists of women and children (including infants) (USA for UNHCR, 2018).

Every year, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) releases Humanitarian Response Plans (HRPs) to share their approach to tackle the "assessed and expressed needs" of a country in a humanitarian emergency situation(Financial Tracking Service, 2016). The HRPs are designed to be used as a management tool for decision-making by humanitarian country teams (HCTs), comprising of UN agencies, NGOs and others (Financial Tracking Service, 2016). These documents arean effective way to assess a country's priorities, readiness and workplan to address challenges that may arise in a humanitarian crisis.

One way to address MHM in a humanitarian context is through the distribution of dignity kits among other kits, such as water, sanitation and hygiene (WASH) kits and non-food items (NFI) kits. A dignity kit is a means of aiding those displaced by providing basic supplies for women and girls to support their health needs and help uplift their dignity during a difficult period (Global Protection Cluster, 2015). The exact items included in the dignity kits is based on their relevance, cultural sensitivity and price, and should ideally be incorporated after consulting the women in the targeted community(Global Protection Cluster, 2015). A typical dignity kit can comprise of sanitary pads, underwear, hand soap, toothbrushes, and toothpaste (Global Protection Cluster, 2015). Context-specific items may include a headscarf, especially for women in Muslim populations (Global Protection Cluster, 2015).

Despite the imperativeness of addressing MHM within the SDGs, MHM is underrepresented within these goals and targets. A key consequence of this oversight includes women and girls using unsanitary materials and thereby increasing disease burden, such as the incidences of urinary tractinfections, aswas stated in the recent report of United Nations(WWAP, UNESCO, & Azoulay, 2019). This aim of this synthesis is to identify gaps within the HRPs published by UN-OCHA between 2016-2018 and explore the extent of the distribution of dignity kits in a humanitarian crisis. This analysis is intended to understand the needs surrounding MHM in low-resource settings and conflicts scenarios with focus on populations and communities in vulnerable situations.

Materials & Methods

The HRPs were retrieved from the Humanitarian Response website (OCHA Services, n.d.). The HRPs that met the following search strategy were incorporated into the analysis. *Document type*: "Humanitarian Programme Cycle – Strategic Response Plan;" *Organization*: "United Nations Office for the Coordination of Humanitarian Affairs;" *Webspace*: "Humanitarian Program Cycle;" and *Theme*: "Strategic Planning."

The resulting documents were screened to ensure that only the relevant HRP documents (i.e., the HRPs published from 2016 to 2018 and in English or French) were included in the analysis. A total of 51 HRPs were searched for the keywords "menstr*", "repro*", "WASH kits" or "water, sanitation and hygiene kits" or "hygiene kits", "NFI kits" or "non-food items kits" or "non food items" and "dignity kits". The HRPs were also thoroughly read to search for other MHM-related terms that may not have been captured by the above stated search strategy.

Percentage of countries that released HRPs in a continent out of all countries were calculated for each year. Out of the countries that released HRPs, the percentage of countries that mentioned MHM-related terms were analysed. Finally, ofthe countries that mentioned MHM-related terms, the percentage of countries that explored the distribution of dignity kits were calculated. Details on number of dignity kits needed and the target number of dignity kits to be distributed were also extracted from HRPs. A flowchart representing the search strategy is shown in **Figure 1**. The data and information harvested during this process was translated into visually demonstrative outputs (tables and maps) to reflect the trends and patterns using Microsoft Excel and Mapchart, an online platform to design maps ("Mapchart," 2014). Countries that mentioned MHM-related terms in their HRPs were color-coded green and countries that did not address MHM in their HRPs were color-coded red. The maps are compiled in the Appendix.

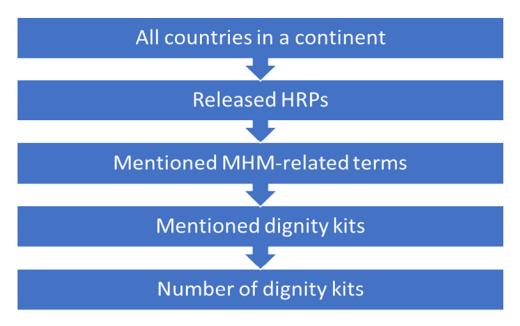


Figure 1: Schematic representation of the methodological approach adopted in the synthesis

Results

Classification of the HRPs based on the continents show that Africa consistently released the most HRPs, followed by Asia, America, and Europe. In absolute terms, from 2016-18, Africa published 30/51 (59%); Asia published 14/51 (27%); America published 5/51 (10%); and Europe published 2/51 (4%) of the total HRPs. The number of countries that released HRPs from 2016-18 per continent are shown in **Table 1**. In addition, it was noted that there was no increase in the number of HRPs released in all continents from 2016 to 2017 or from 2016 to 2018.

Table 1: Number of countries per continent that released humanitarian response plans, classified according to the applicable year(OCHA Services, n.d.).

	Continents	2016	2017	2018	Total HRPs published
1	1 Africa (Total countries=54)		5	11	30
2	Asia (Total countries =48)		4	4	14
3	Americas (Total countries =35)	2	1	2	5
4	Europe (Total countries =44)	0	1	1	2
5	Total	22	11	18	51

When MHM-related terms were searched, it was noted that African countries (93% in 2016, 60% in 2017 and 91% in 2018) mentioned those terms the most in their HRPs (**Table 2**). Asian countries mentioned MHM-related terms in 83% (5/6) and 25% (1/4) of the HRPs in 2016 and 2017, respectively. Results from the European and American continent as shown in Table 2, reflect how MHM is represented.

Table 2: Percentage of HRPs that mentioned	MHM-related tern	ns published by	continent in y	eas 2016, 2017, and
2018(OCHA Services, n.d.).				

	Continents	2016	2017	2018	Number of HRPs the mentioned MHM- related terms
1	Africa	13/14	3/5	10/11	26/30
2	Asia	5/6	1/4	3/4	9/14
3	America	0/2	0/1	2/2	2/5
4	Europe	0/0	1/1	1/1	2/2
5	Total	18/22	5/11	16/18	39/51

Trends shown in Table 1 and 2 show that the number of HRPs published and the percentage of HRPs that mentioned MHM-related terms, were lower in 2017 than 2016 and 2018. When this trend was further investigated, it was found that it may be associated with the funding received to address humanitarian criseswas decreased in 2017. Thus,partly explaining the decline in published HRPs and HRPs that mentioned MHM-related terms(OCHA Visual Information Unit, 2017).

In 2018, African (50%) and Asian (67%) countries planned to distribute dignity kits (**Figure 2**). In 2017, our analysis demonstrated that theonly HRP from Asian countries that discussed MHM also discussed dignity kits(for the Rohingya Refugee Crisis). When analyzing HRPs released by the African continent, a general upward trend is observed. No European or American countries distributed dignity kits in 2016-2018.

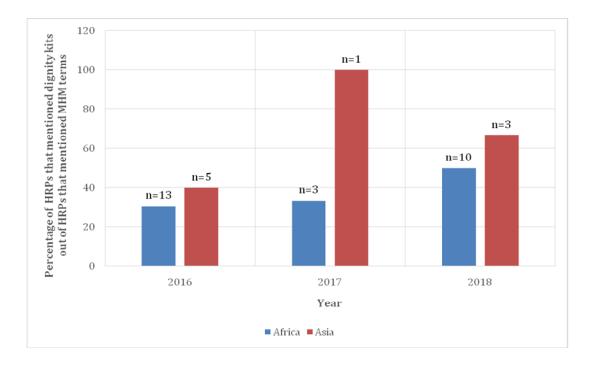


Figure 2: Percentage of HRPs that mentioned dignity kits out of the number of all HRPs that mentioned MHM-related terms published by Africa and Asia in 2016-2018(OCHA Services, n.d.).

Out of all the countries that mentioned the distribution of dignity kits, Somalia, Mali, South Sudan, Central Republic of Africa, Yemen and Syria did not state the numbers of dignity kits to be distributed in 2018. As well, in 2017, Nigeria did not state the numbers of dignity kits to be distributed. In 2016, Libya, Burkina Faso and Afghanistan did not state the number of dignity kits to be distributed. This shows that there is also a need for monitoring progressand evaluative measures to ensure adequate reporting. The numbers of kits needed and to be distributed by other countries are summarized in **Table 3**.

V	C	Number of kits	Number of kits to be	
Year	Country	needed	distributed	
2018	Libya	82,000	10,000	
2018	Yemen	Not reported	78,917	

175,000

481,457

Not reported

Not reported

175,000

500,000

60,000

108,000

Rohingya's Refugee

Crisis

Nigeria

The Gambia

Yemen

Table 3: Number of dignity kits needed and distributed in different countries based on the HRPs(OCHA Services, n.d.).

The **Table 4** in the Appendix provides details of MHM related terms each HRP mentioned (Grey = No HRP released; Red = No MHM-related terms found; Green = MHM-related terms found; Yellow = Dignity kits). **Figure 3** in the Appendix illustrates the geographic spatial and temporal distribution of HRPs that did or did not mention MHM-related terms.

Discussion

2017

2016

2016

2016

By examining the lack of HRPs addressing MHM and the distribution of dignity kits during humanitarian crises, this synthesis reflects some key points: (a) Between 2016-2018, there were 30 HRPs released by African countries, 14 HRPs released by the Asian countries, 5 HRPs released by countries of the Americas and 2 HRPs released by the European region;(b) During this period, 39 HRPs addressed MHM, which accounts for more than half of all published HRPs included in this synthesis;(c) In 2018, 91% of HRPs were released for African countries, and 75% of HRPs for the Asian countries addressed MHM;and (d) When examining the HRPs that mentioned MHM more closely, it was noted that 50% of African countries, and 67% of Asian countries planned to distribute dignity kits in 2018.

HRPs distributed for African and Asian countriesmentioned MHM the most in comparison to other continents. This could be due to their higher number of published HRPs in total and thus, a greater variation in the dataset. A contextual explanation to why African and Asian countries mention MHM terms more than others could be partly due to the ongoing efforts to fight stigmatizationsurrounding menstruation (Werft & Canal, 2017). In fact, many not-for-profit organizations, such as Simavi and Deutsche Gesellschaft für Internationale Zusammenarbeiz (GIZ), are using educational and fieldwork methodologies to promote awareness around the social impact of a lack of safe MHM practices (World Vision, 2018). There are also many taboos surrounding MHM where culture and religion impact women's access to effective MHM especially within low-resource settings. For example, in Bangladesh, the term menstruation is never spoken, but referred to by using gestures (Women Deliver, 2016). In the presence of heavy stigmatization surrounding MHM, a focus on MHM-based interventions can address taboos while also empowering women and impacting future policy (Tortajada, 2016; Women Deliver, 2016).

Dignity kits can be ideally developed by consulting women and girls in the community, which provides an opportunity to engage women in decision-making as significant stakeholders in order to empower them (Global Protection Cluster, 2015). In addition, dignity kits are theoretically designed to uplift women's dignity during difficult times and distributed to minimize the risk of gender-based violence(Global Protection Cluster, 2015). From

the results of this synthesis, the percentage of HRPs that mention MHM-related terms (90% and 75% for African and Asian countries, respectively) and the percentage of countries that distribute dignity kits in the field (24% and 14% for African and Asian countries, respectively) are different. This suggests that perhaps, despite the benefits of dignity kits, they are not adopted universally. This also highlights a lack of universal policy surrounding the provision of MHM in humanitarian crises, which could be due to inadequate inter-sectoral collaboration, absence of explicit representation of MHM in the SDGs, and/or lack of evidence on MHM best-practices.

As evident from Table 3, individual countries may identify a target number for dignity kits to be distributed but may fail to report or fully meet the need of dignity kits in their country. Although there are other kits distributed, not all WASH or NFI kits contain the needed MHM products in accordance with the situational conditions and an overall distribution does not necessarily indicate that women and girl's needs regarding MHM were addressed (Global Protection Cluster, 2015).

A cursory examination of the SDGs reinforces the notion that MHM targets and indicators are lacking within the Sustainable Development 2030 Agenda. For instance, the SDG 6 synthesis report emphasizes the importance of women's health issues, and discusses MHM explicitly, but the SDG 6.2.1 metadata does not directly reference MHM, nor does it include measurements related to women's needs for safe MHM (menstrual products, privacy and separate washrooms in public and households) (UN Water, 2018; United Nations, 2019). The SDGs indicate that potential positioning of gendered issues (e.g., MHM) can be addressed within SDGs 3, (Healthy Lives and Wellbeing) or SDG 5 (Gender Equality), but also within SDG 6 (Water and Sanitation) since MHM is a part of WASH (UN Water, 2018). For example, within SDG 5.6, the target is addresses reproductive health centers that focus on law-making and the autonomous decision-making of women regarding contraceptives and family planning. Furthermore, SDG 5.6 fails to address women's individual health issues such as MHM (United Nations, 2019). Target 6.2, a WASH indicator, mentions addressing the needs of women and vulnerable groups, but does not elaborate on methods to measure whether such needs are being met (United Nations, 2019). When examining how MHM is currently positioned and addressed in the 2030 Sustainable development agenda, women and girls are severely left behind which is in part due to neglecting their MHM needs. Considering that menstruation is a physiological process that occurs in almost all females of reproductive age, effective MHMinterventions can help countries progress towards their SDG targets while allowing women to equally contribute to development (Women Deliver, 2016).

The Sphere guidelines can provide basic standards to meet the needs of those affected by a humanitarian crisis and enhancement of human safety and dignity is of one of their protection principles (Humanitarian Charter, 2018). Standard 1.3 under the WASH cluster has explicit identified key indicators including the percentage of women with access to MHM and their satisfaction with the MHM services (Humanitarian Charter, 2018). Based on the results from this study, efforts should be propelled towards applying the standards from the Sphere guidelines actively and implementing widely to ensure that women's needs are met in a humanitarian crisis.

Few limitations exist in the methodologyadopted for this study. Despite using MHM-related terms in the search strategy (e.g., dignity kits, NFI kits, WASH kits, reproductive and menstrual products), these kits may not necessarily contain MHM products at all. Moreover, the exact contents of every kit vary according to the geographical range and may not be tailored to the unique needs of the women in the community (Global Protection Cluster, 2015). Therefore, the results presented above must be interpreted with caution as the exact items included in the different kits were not explicitly mentioned for all HRPs. The study did not include HRPs published in languages other than English and French, therefore, limiting the exact reach of these kits. These trends and the study as a whole are limited in focus to HRPs published by the OCHA, even though different organizations, such as UNFPA, also publish HRPs.

Conclusions

MHM is a somewhat neglected and under-reported in the HRPs. To provide adequate MHM to women and girls in crises, gaps in global policy must be bridged, and more comprehensive guidelines for MHM and the feasibility of the distribution of kits is necessary, so that a universal policy can be formed and implemented. This synthesis is an attempt to examine how the HRPs address MHM to provide a baseline for future research on the MHM-HRP intersection gaps and needs. It also opens a platform for future discussion of potential trends of MHM integration in water and gender-related SDGs in the sustainable development agenda.

Often MHM is addressed under the umbrella of WASH and not a stand-alone or independent target or goal. However, MHM needs to be prioritized and addressed explicitly and independently due to its clear connection

withwomen's health, dignity and safety. The research presented in this synthesis underscores the importance of prioritizing MHM by establishing specific targets and indicators which can serve to promote women's well-being, and notably, help achieve the SDG targets, particularly the objective underlined in SDG 5. Furthermore, an intersectoral collaboration (among sectors such as WASH, education and shelter) may be paramount for effective MHM delivery in a humanitarian crisis. Future research on barriers to distribution of dignity kits may offer additional direction in this context.

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Appendix

Table 4: Individual countries and their modes of addressing menstrual hygiene management in the humanitarian response plans (Grey = No HRP released; Red = No MHM-related terms found; Green = MHM-related terms found; Yellow = Dignity kits).

	Year								
	Countries	2016	2017	2018					
	AFRICA								
1	Cameroon	NFI & WaSH Kits	Hygiene Kits	"Menstrual Hygiene" products					
2	Nigeria	Dignity & NFI Kits	Dignity & NFI Kits	Hygiene and NFI Kits, Menstrual Pads					
3	Somalia	No HRP released	Hygiene Kits	Dignity & Hygiene kits					
4	Libya	Dignity & Hygiene Kits	MHM not mentioned	Hygiene, Dignity & NFI kits					
5	Mali	WaSH kits with pads	MHM not mentioned	Dignity & WaSH kits					
6	Burundi	Hygiene kits & "Reproductive Health" products	No HRP released	Hygiene kits					
7	Djibouti	WaSH kits	No HRP released	No HRP released					
8	Mauritania	WaSH kits	No HRP released	No HRP released					
9	Burkina Faso	Dignity & WaSH kits	No HRP released	No HRP released					

10	Chad	WaSH kits	No HRP released	WaSH kits			
11	Democratic Republic of Congo	Hygiene Kits	No HRP released	MHM not mentioned			
12	The Gambia	Dignity Kits	No HRP released	No HRP released			
13	Zimbabwe	NFI kits	No HRP released	No HRP released			
14	South Sudan	MHM not mentioned	No HRP released	Dignity & NFI kits			
15	Sudan	No HRP released	No HRP released	Hygiene & NFI kits			
16	Central African Republic	No HRP released	No HRP released	Dignity & Hygiene kits			
17	Senegal	Hygiene Kits	No HRP released	No HRP released			
	ASIA						
1	Syrian Arab Republic	Hygiene Kits	MHM not mentioned	Dignity, Hygiene, NFI kits			
2	Rohingya Refugee Crisis	No HRP released	Dignity & Hygiene Kits	No HRP released			
3	Occupied Palestinian Territory	Hygiene Kits	MHM not mentioned	MHM not mentioned			
4	Myanmar	MHM not mentioned	MHM not mentioned	No HRP released			
5	Afghanistan	Dignity & Hygiene Kits	No HRP released	Hygiene kits			
6	Democratic People's Republic of Korea	WaSH kits	No HRP released	No HRP released			
7	Yemen	Dignity Kits	No HRP released	Dignity & Hygiene kits			
	AMERICAS						
1	Haiti	MHM not mentioned	No HRP released	Hygiene Kits			
2	Colombia	No HRP released	MHM not mentioned	Hygiene & NFI kit			
3	Guatemala Honduras	MHM not mentioned	No HRP released	No HRP released			
	EUROPE						
1	Ukraine	No HRP released	"Hygiene items"	Hygiene kits			

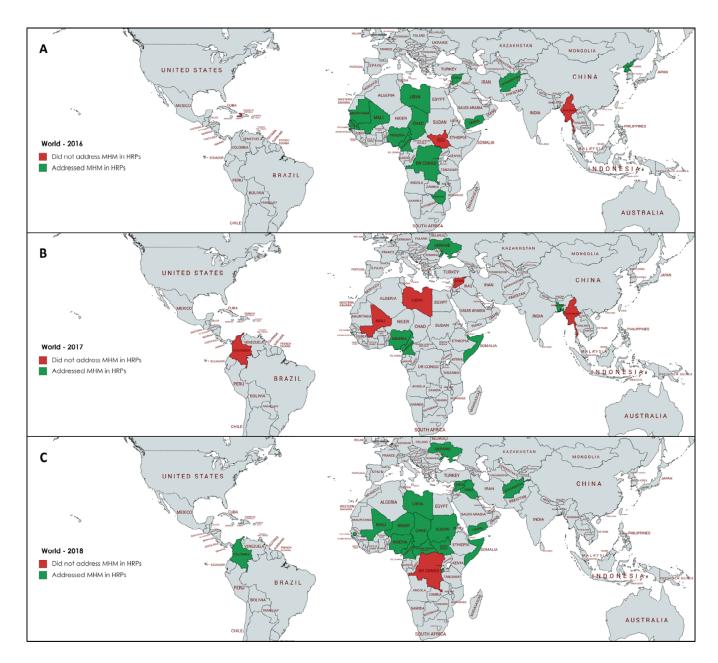


Figure 3: Global map showing countries that addressed MHM (green) and the ones that did not address MHM (red) in their HRPs in 2016 (A), 2017 (B) and 2018 (C).