

Mental health in the context of emergencies and violence: does depression impair handwashing in children?

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Background

Mental disorders, particularly depression and post-traumatic stress disorder (PTSD), are common long-term psychological outcomes in emergency contexts associated with conflict or natural disaster.

Further sources of negative health outcomes, with the highest rates in developing countries, are violence and abuse towards children.

According to the World Health Organization (2014), depression is a common mental disorder characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration.

Depression can be long-lasting or episodic, substantially impairing an individual's ability to function at work or school or cope with daily life.

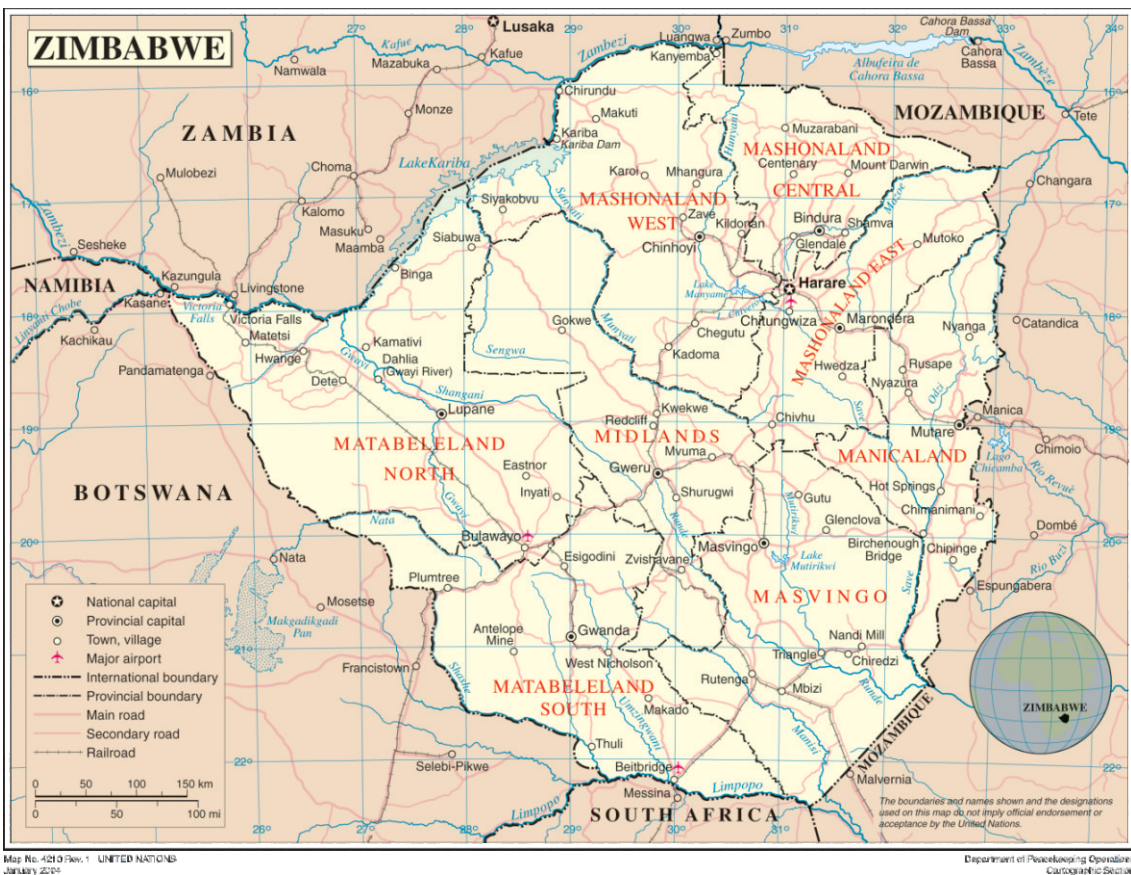


Figure 1. Republic of Zimbabwe. Map No. 4210, Rev. 1, January 2004, United Nations

RANAS model

- To understand how depression can influence handwashing, the relevant behavioral factors must be identified.
- The Risk, Attitude, Norm, Abilities, Self-regulation (RANAS; Mosler, 2012) model of behavior change provides the most comprehensive compilation of behavioral factors in WASH: Water, Sanitation & Hygiene.
- This research aims to explain the underlying mechanisms of pupils' hand-washing behavior in Zimbabwe using the behavioral factors of the RANAS model.

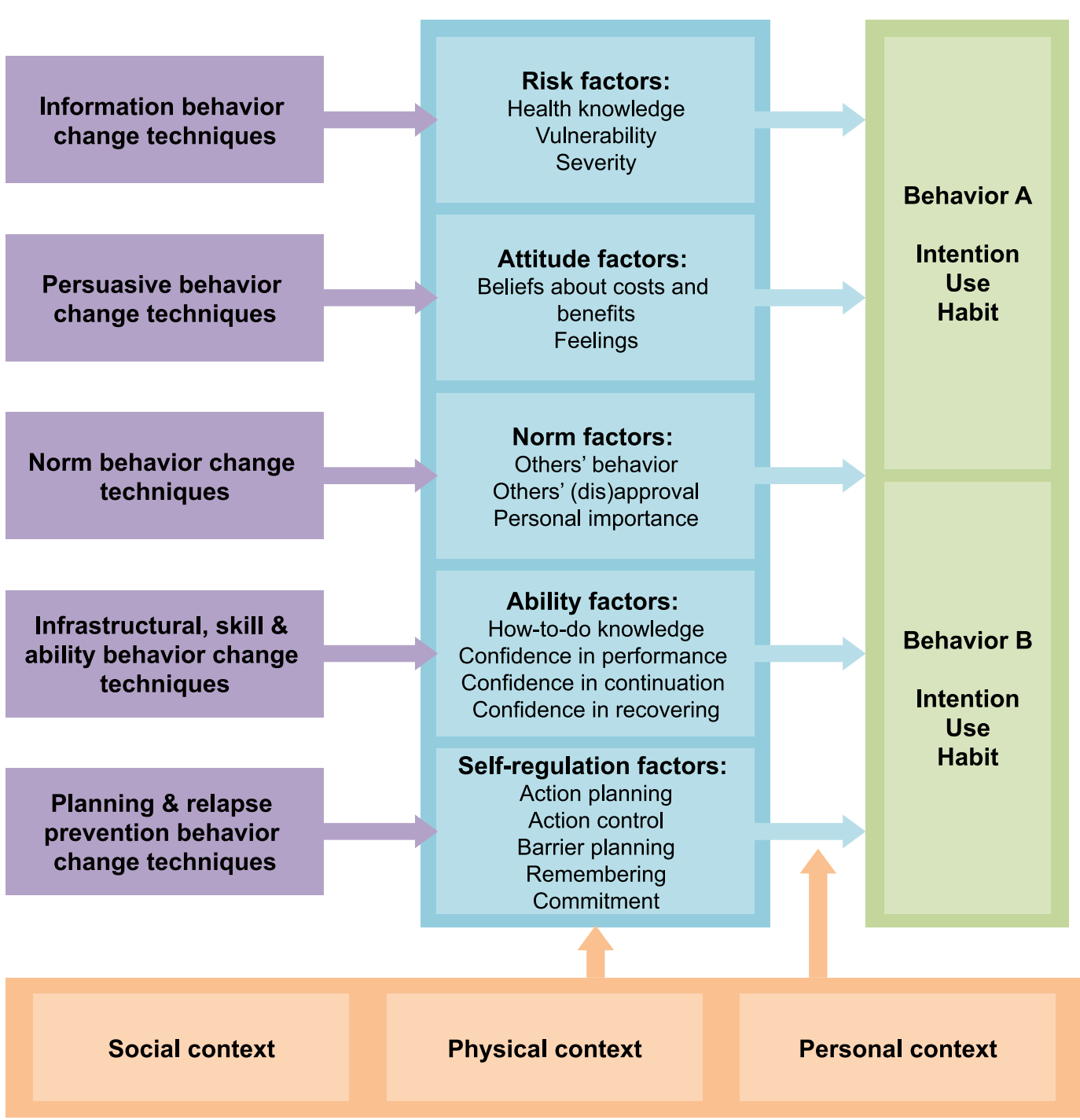


Figure 2. The RANAS model (Mosler, 2012)

Research questions

For our study, we expected that depressed children would

- wash their hands less often,
- have weaker behavioral factors,
- exhibit less influence of behavioral factors on behavior,
- have different behavioral factors, and
- demonstrate an impaired influence of behavioral factors on handwashing.

Methods

Data collection

- In 20 primary schools in peri-urban & urban Harare, Zimbabwe.
- $N = 556$ face-to-face interviews with primary school children.
- Structured questionnaire for children based on RANAS model.
- The Center for Epidemiological Studies Depression Scale for Children (CES-DC).
- The data were collected on a tablet device and using response cards.

Dependent variable/ outcome

- Self-reported handwashing with soap at critical times (HWWWS).

Predictors

- All RANAS behavioral determinants.

Moderator

- Depression (CES-DC scores, cut point ≥ 15).

Data analysis

- Multiple linear regression, moderation analysis with PROCESS (Hayes, 2012).



Figure 3. School interview

Results

More than half of the assessed children in primary schools of Harare were depressed (Fig. 4).

- Self-reported handwashing with soap among depressed children at school was significantly lower than among non-depressed children.
- Almost all RANAS behavioral factors were significantly lower in depressed children. Depressed children
 - indicated more often that they forgot to wash their hands,
 - experienced less pleasure from handwashing,
 - felt less guilty when not washing their hands,
 - had less of an intention to wash their hands with soap,
 - perceived themselves as less vulnerable to getting diarrhea and
 - believed that it was not that severe a condition,
 - cared less about what others thought when they did not wash their hands than did non-depressed children.
- In depressed children, behavioral factors were less indicative of the handwashing behavior. This is due to the fact that the behavioral factors of the RANAS model provide a better explanation of the handwashing behavior in non-depressed than in depressed children (see Fig. 7, value of adj. R^2).
- The behavioral factors worked differently in the depressed than in the non-depressed children's group. Among depressed children

- the expected results of costs and benefits (beliefs about costs and benefits),
 - social norms such as the behavior of important people (*others behavior*),
 - belief in the ability to organize and execute certain behavior (*confidence in performance*),
 - remembering
 - habits
- were significant predictors of handwashing.

In contrast, in non-depressed children, two behavioral factors were associated with handwashing:

- the belief in the ability to organize and execute handwashing (*confidence in performance*) and habitual behavior.
- Behavioral factors that were impaired in depressed children were
 - health knowledge,
 - beliefs about costs and benefits,
 - feelings,
 - commitment.

These findings imply that depression interrupts the relationship between several behavioral determinants and handwashing (see Fig. 8).

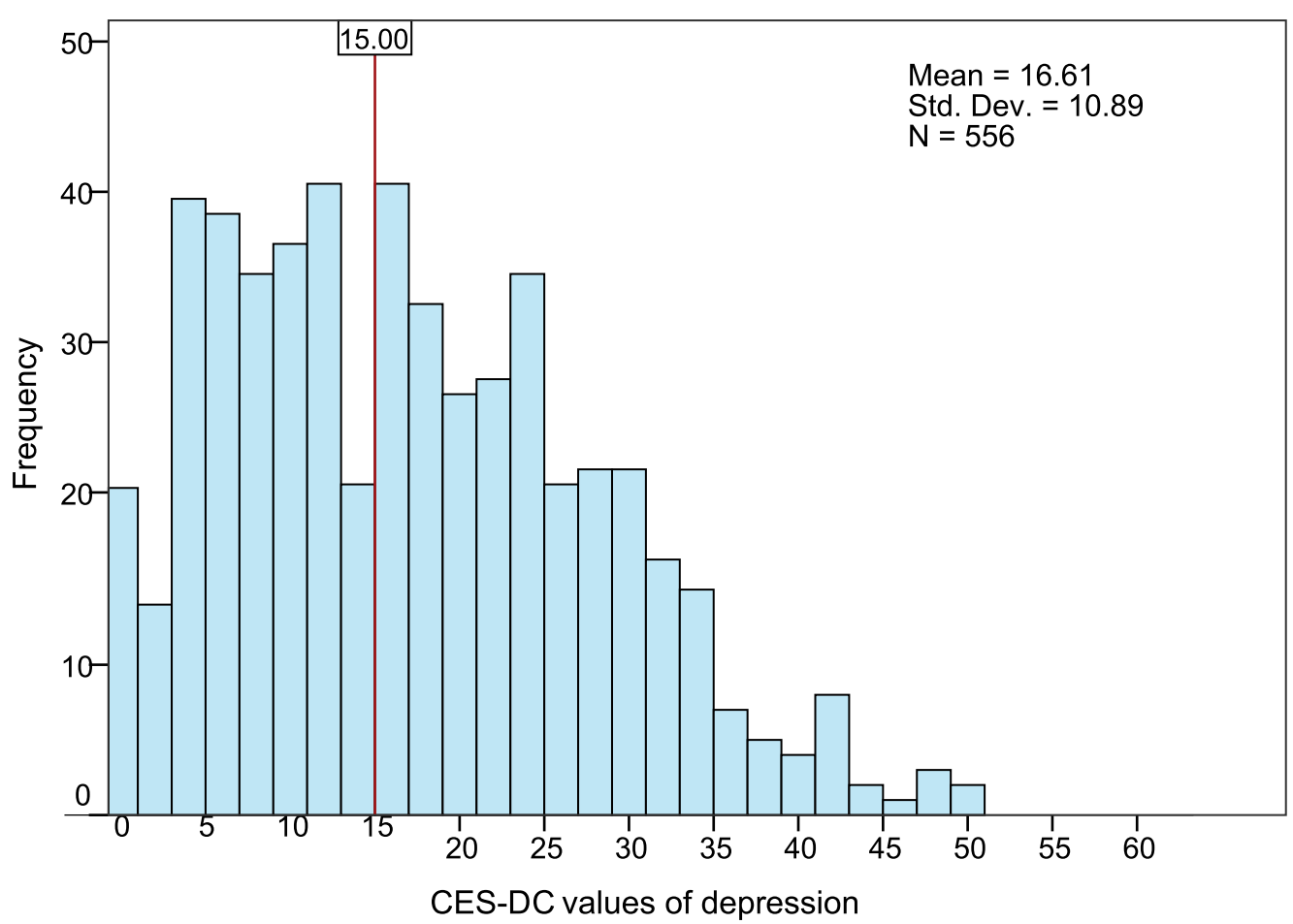


Figure 4. Frequency of depression among primary school pupils in urban Harare (CES-DC score ranges 0-60, cutoff ≥ 15)



Figure 5. Handwashing among schoolchildren in Harare



Figure 6. Handwashing among schoolchildren in Harare

Linear regression analysis of the RANAS hand-washing factors by CES-DC levels of symptoms of depression in children (depressed vs. non-depressed children group)

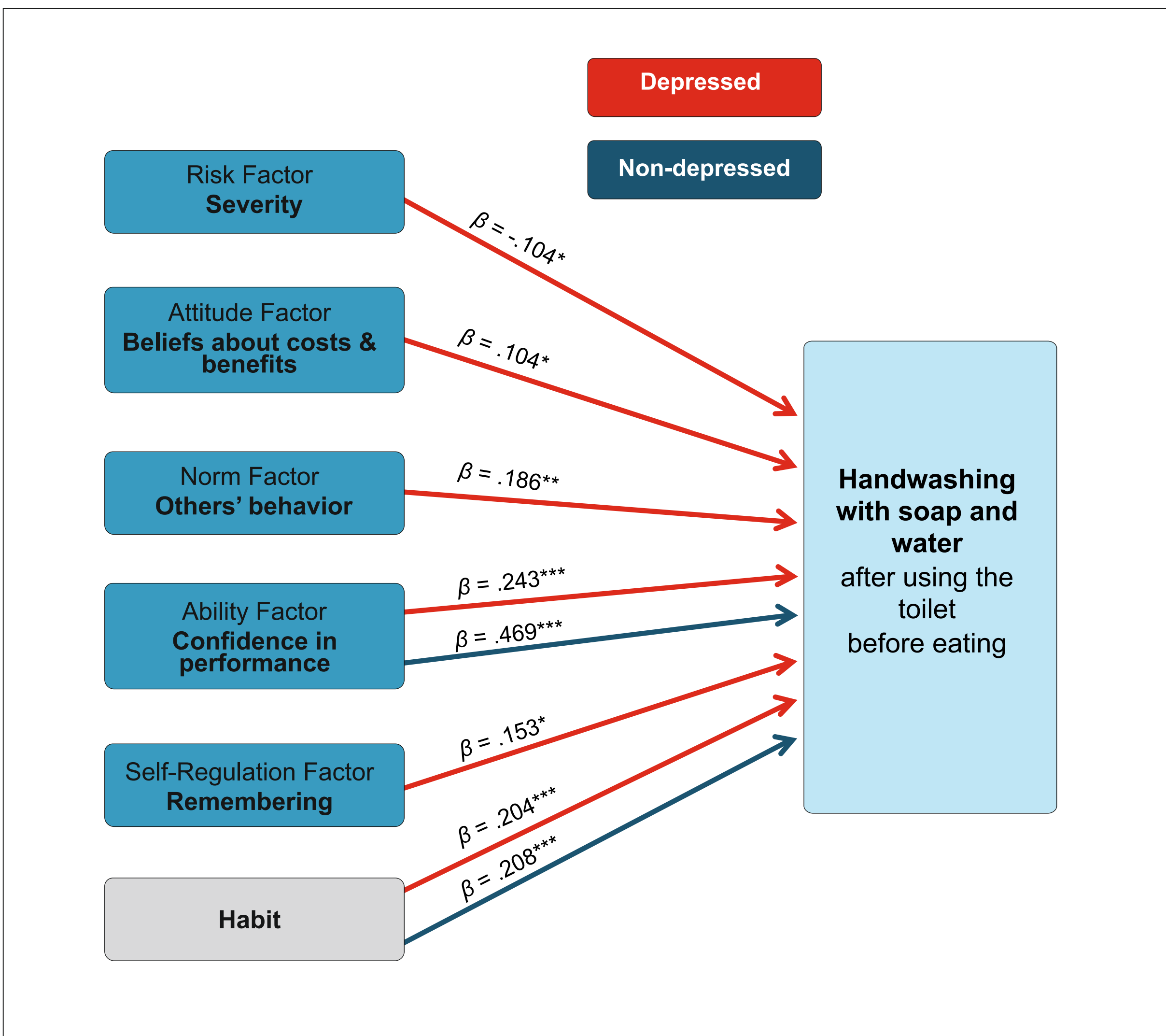


Figure 7. Notes: $^*p \leq 0.05$; $^{**}p \leq 0.01$; $^{***}p \leq 0.001$. Scale range for variable depression: Yes=1, No=0 (CES-DC cutoff point ≥ 15 ; 0-60). Standardized beta values are presented. Adj. R^2 in depressed children group = .359 ($N=291$); Adj. R^2 in non-depressed children group = .471 ($N=238$). Only coefficients of significant factors are displayed in the graph.

Interaction effects: depression and behavioral factors on self-reported handwashing behavior

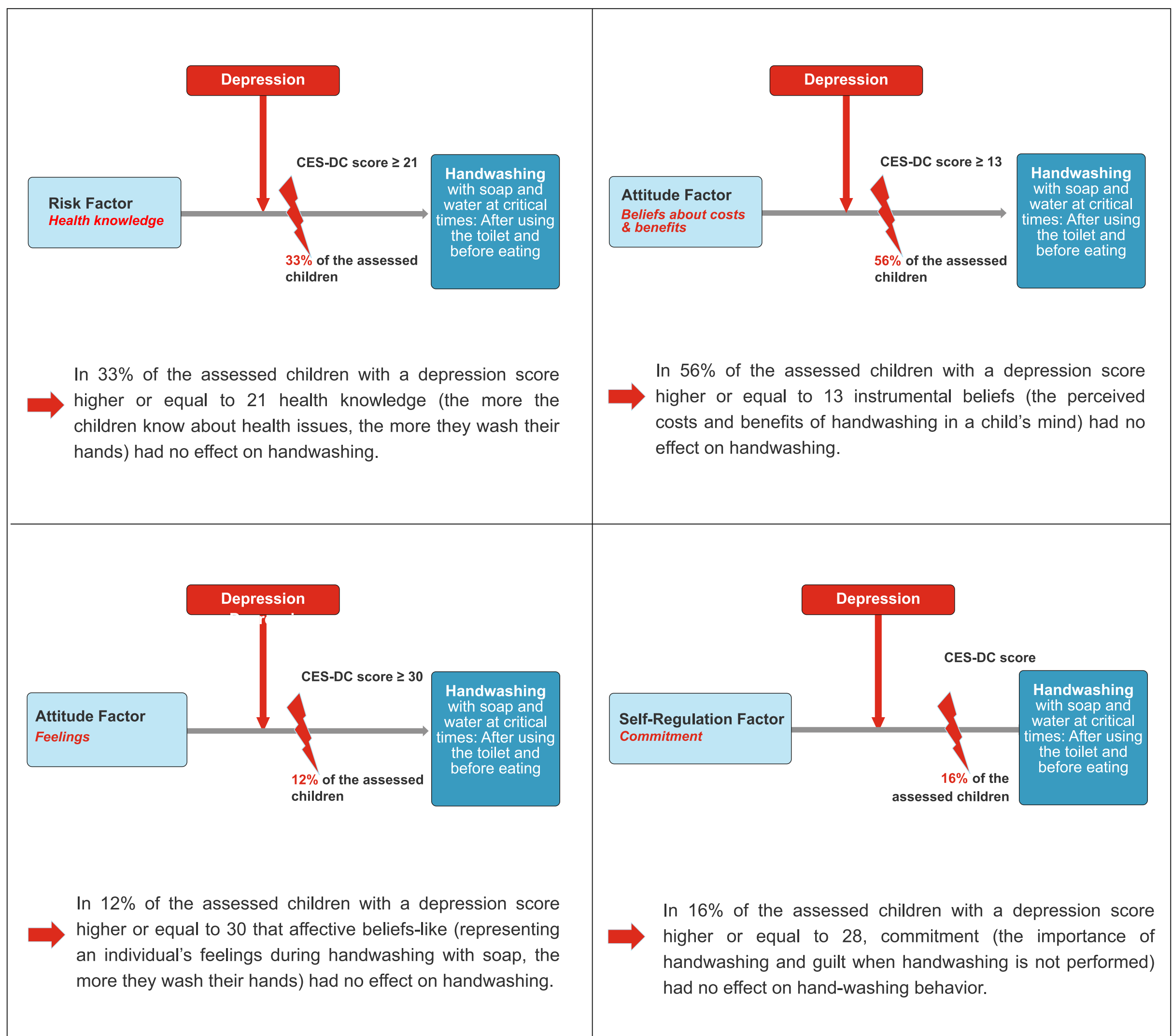


Figure 8. Notes: $N = 556$, conditional effect of behavioral factor on handwashing at values of moderator (CES-DC scale 0-60). Displayed are the percentages of children, where the behavioral factors no longer predicts the handwashing.

Implications for a handwashing campaign

These results imply that in a population with a significant proportion of depressed children, interventions mitigating depression should precede behavioral change interventions for handwashing. There is evidence that physical exercise has a positive effect on the mental

well-being of a person, and it has been successfully applied in the treatment of anxiety and affective disorders such as depression.

Research on this topic is especially relevant in emergency contexts, as it involves conducting depression-relieving measures before or in parallel with any WASH interventions to make them more effective.

References

Mosler, H.-J. (2012). A systematic approach to behavior change interventions for the water and sanitation sector in developing countries: a conceptual model, a review, and a guideline. *International journal of environmental health research*, 22, 431-449.

Hayes, A. F. (2012). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]*. [cited 2014 Oct]. Retrieved from www.afhayes.com/public/process2012.pdf

