*Journal of Research in Reading*, ISSN 0141-0423
*Volume 44, Issue 2, 2021, pp 360–378*
*DOI:10.1111/1467-9817.12342*

# Reading for pleasure among Jordanian children: a community-based reading intervention

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**Background:** We Love Reading (WLR) is a community-based reading intervention aimed at cultivating an interest in reading for pleasure among children through mobilising local community members to establish informal libraries and organise read-aloud sessions in public spaces. The programme targets primarily children between the ages 4–10 but is also open to older children. The present study investigated the effect of the WLR programme on children's practices and attitudes related to reading for pleasure.
**Methods:** Participants were 1,718 children recruited from different regions in Jordan. Children were, on average, 7.52 years old (*SD* = 2.12). The treatment group comprised 1,304 children (59% girls; $M_{age}$ = 7.18 years, *SD* = 2.16) who received the WLR programme over 4 months. The comparison group comprised 414 children (59% girls; $M_{age}$ = 8.50 years, *SD* = 1.67) who did not attend any reading programme. Two assessment tools, adapted from previous literature, assessed reading attitudes and reading practices. The structural equation modelling framework was used to analyse the data.
**Results:** Results showed a small but significant increase in reading attitude scores and reading practice scores among children who participated in the WLR programme. The positive effect was found for children of all ages and for boys and girls alike.
**Conclusion:** A comparison of scores between the WLR group and the comparison group showed a small advantage for the WLR group. The results provide initial support for the WLR programme as a promising community-based reading intervention for promoting reading for pleasure among children.

**Keywords:** reading intervention, reading attitudes, reading practices, reading for pleasure, Jordan

## Highlights

*What is already known about this topic*

- A positive attitude towards reading plays an important role for sustained lifelong reading.
- An important instructional practice to improve children's literacy outcomes is reading aloud to children.
- The low frequency of read-aloud practices at home and school results in children being less engaged in reading activities.

*What this paper adds*

- The results suggest that a community-based reading intervention, We Love Reading, can be effective in improving children's reading attitudes and practices.
- Small positive effects on reading attitudes and reading practices were found for children of all ages and for boys and girls alike.

*Implications for theory, policy or practice*

- A community-based reading intervention can be used to support children in developing and keeping an interest in reading for pleasure.
- Reading aloud to children by nonprofessional community volunteers not only exposes children to reading but also provides them with storytelling experiences, a tradition that is deeply rooted in the Arab culture.
- Exposing children to read-aloud experiences should be given special attention, in particular in societies, including Jordan and other countries in the Arab world, where a reading culture is lacking and children are not regularly exposed to reading.

The ability to read is key to accessing information in everyday life and associated with lifelong academic and social learning and success (Baki, 2017; Murnane, Sawhill, & Snow, 2012). Reading skills are 'not only a foundation for learning […] but also a prerequisite for successful participation in most areas of youth or adult life' (Linnakyla, Malin, & Taube, 2004, p. 234). As such, they represent not only basic skills but also a functional means to support the individual to achieve their goals and developmental potential and to participate in society (Organisation of Economic Co-operation and Development [OECD], 1999).

Despite the recognised benefits of reading at the level of the individual and society, a reading culture is lacking in parts of the world, including many Arab nations (Al-Mahrooqi & Denman, 2016; Magin, 2010; O'Sullivan, 2009). According to the Arab Thought Foundation Fikr, the average time for an Arab child reading for pleasure is 6 minutes a year compared with 12,000 minutes in the West (Al-Mahrooqi & Denman, 2016). Similarly, the average Arab adult reads approximately four pages of literature per year, while adults in

Western countries read, on average, 8 (average British adult) to 11 (average American adult) books per year (Al-Musalli, 2014). The underperformance of students in many Arab nations in reading skills on a variety of international assessments is also alarming (Mullis, Martin, Foy, & Hooper, 2017; OECD, 2019). Acknowledging the role of reading in the dissemination of knowledge and information, policymakers in Arab nations recognise that promoting the development of a reading culture may increase the levels of reading (Al-Mahrooqi & Denman, 2016; Clark & Rumbold, 2006). Yet, the impact of programmes is often 'limited by the relative lack of funding and/or by the limited scope with which they can operate' (Al-Mahrooqi & Denman, 2016, p. 13).

We Love Reading (WLR), developed in Jordan, is an example of a community-based reading intervention that targets the country's youth to foster their joy for reading (Hanemann, 2018). In the Arab world, Jordan has the highest level of literacy, with a literacy rate of 98.23% among Jordanians of age 15 and above (UNESCO Institute for Statistics, 2018). However, results of the 2015 survey of the Program for International Student Assessment, an international study of 15-year-old students' scholastic performance implemented by the OECD in 70 nations, show that Jordanian students' average in reading is among the lowest of the participating countries (408 points, rank 58/70; OECD, 2015). Advancing reading habits and developing children's joy for reading might help raise children's reading abilities. Tackling this question, the current study investigates the effect of WLR on children's attitudes and practices related to reading for pleasure.

## Reading attitudes and practices

Reading for pleasure happens when individuals intentionally choose to read, decide which book they read and when and where they read; it is the satisfaction that one will get from the act of reading that motivates the reading activity (Clark & Rumbold, 2006). Reading for pleasure is critical for reading proficiency, which in turn relates to children's educational success (Institute of Education, 2013; Mullen, 2010; OECD, 2011a). Importantly, the effects of reading for pleasure on achievement were found above and beyond parents' level of education and socio-economic status (OECD, 2011a). Reading for pleasure is closely linked with reading attitudes, that is, an individual's beliefs regarding reading for enjoyment and appreciation of books (Progress in International Reading Literacy Study, 2006). Reading attitudes, similar to more general attitudes, include cognitive, emotional and behavioural dimensions that, together, make reading more or less probable (Baki, 2017; Smith, 1990). Children with more positive attitudes towards reading are more motivated to read and therefore spend more time reading (Baki, 2017; McGeown et al., 2015; Sainsbury & Schagen, 2004).

A positive attitude towards reading plays an important role for sustained lifelong reading. Yet, research demonstrates that attitudes towards reading become more negative with age (Kush & Watkins, 1996). This is shown for boys and girls alike, although girls tend to have more positive attitudes towards reading than boys (Kush & Watkins, 1996; Logan & Johnston, 2009; McKenna, Conradi, Lawrence, Jang, & Meyer, 2012). Gender differences favouring girls are also reported for reading practices (Logan & Johnston, 2011). The female advantage has been consistently found across age and grade levels, regardless of the writing or educational system (Logan & Johnston, 2009). Gender differences are explained by, for example, differences in girls' and boys' attention, engagement with learning and their verbal and decoding skills (for a review, see Logan & Johnston, 2011).

Interestingly, larger gender differences are reported for reading attitudes than for reading abilities, and the difference between girls' and boys' reading attitudes was greater for recreational reading (i.e., reading for pleasure) than academic reading (Logan & Johnston, 2009). Moreover, the magnitude of the gender difference increased with age (Logan & Johnston, 2009).

## The role of reading aloud for children's reading skills

The childhood years are an important period for literacy development, although reading ability continues to develop throughout the life span (Cooper, Moore, Powers, Cleveland, & Greenberg, 2014; Smith, 1990). Recent developmental and educational theories view children as active learners who construct their understanding of the world around them through their social and physical experiences (Bredekamp & Copple, 1997). Nevertheless, to achieve high standards of literacy, they need support from their environment, in particular, the home, school and community, in learning how to read and in fostering and sustaining their interest and disposition to read for their enjoyment, information and communication (National Association for the Education of Young Children, 1998). Consequently, a central objective of reading interventions is making reading a constant and intentional practice (Baki, 2017). The main assumption underlying most interventions is that the level of reading proficiency will be enhanced through promoting the experience of reading, improving positive attitudes towards reading and encouraging reading for pleasure (Fletcher, Grimley, Greenwood, & Parkhill, 2012; Terlitsky & Wilkins, 2015).

An important strategy to foster the development of young children's reading skills is reading aloud to children (Jacobs, Morrison, & Swinyard, 2000; Ledger & Merga, 2018; Merga & Ledger, 2018). Particularly in early childhood, reading aloud to children has a strong effect on children's oral language skills, such as vocabulary and comprehension, that in turn contribute to later success in reading (Duursma, Augustyn, & Zuckerman, 2008; Merga & Ledger, 2018; Trelease, 2001). Reading aloud to children has also been found to build children's self-esteem and general world knowledge and promote their love for reading (Duursma et al., 2008). Moreover, children learn about the practical habits of reading, such as how to hold a book and turn a page (Duursma et al., 2008).

However, the impact of reading to children on their development varies widely, depending on such things as the style of reading, the quality of the interaction and the embedded active teaching (Duursma et al., 2008). Importantly, it is not enough to simply read a text to a child for bringing about the positive impact on children's development (Duursma et al., 2008; Lane & Wright, 2007). Rather, reading to children needs to be engaging, using voices and gestures to enhance understanding, encouraging children to make predictions and inferences and relating the text to personal experiences (Lane & Wright, 2007). Moreover, when children see adults excited about reading, they catch their enthusiasm, hence fostering a positive attitude towards reading (Trelease, 2001). Older readers, when asked about factors that led them to become avid readers, often refer to read-aloud experiences for developing a lifelong love of reading (Merga, 2017b, 2017c).

There is a widespread acceptance that reading aloud to children fosters their emergent literacy and language development. Yet, there are large differences in the frequency of children's read-aloud experiences prior to school entry (Lane & Wright, 2007). Reading aloud at home may become even less frequent when children make the transition to formal schooling (Merga & Ledger, 2018). Similarly, teachers tend to not read aloud to their

students regularly in their classroom; this is particularly true for middle and secondary school classrooms (Ariail & Albright, 2006; Braun, 2010; Merga, 2017a). One explanation may be children's rapidly developing reading skills during the elementary school years and their ability to read on their own. Nevertheless, parents and teachers continue to play an important role in modelling children's reading habits. Read-alouds to children of all ages can help enhance their reading abilities and passion for reading. Although reading aloud to children is most relevant when they are learning to read (Swanson et al., 2011), its educational benefits have also been reported for older students (Ivey, 2003). Furthermore, middle school students continue to enjoy read-alouds (Ariail & Albright, 2006; Ivey, 2003). The relatively low frequency of read-aloud practices at home and school is therefore of concern to policymakers and governments that refer to the high investment return of reading aloud (Ledger & Merga, 2018). Consequently, increasing the use of read-alouds as literacy instructional practice is central to interventions aimed at improving children's literacy outcomes.

## We Love Reading – A read-aloud intervention

We Love Reading is an intervention that capitalises on the benefits of read-alouds. It is a community-based reading programme aimed at fostering the love of reading among children. The programme targets primarily children between the ages 4–10 but is also open to older children. The main assumption is that creating a culture of reading for pleasure needs to start with children at a young age (Gottfried, Schlackman, Gottfried, & Boutin-Martinez, 2015; Terlitsky & Wilkins, 2015) and that reading aloud to children can be a successful activity to this end (Ledger & Merga, 2018; Swanson et al., 2011). Using public read-alouds, WLR aims to foster excitement in children and assumes that children's experience during the public readings will translate to reading practices at home (Hanemann, 2018). Trained local volunteers, called ambassadors, organise regular read-aloud sessions in public community spaces, such as children's centres, mosques and parks. These spaces are called WLR libraries. WLR provides ambassadors with training that uses various interactive modules addressing the importance of reading for children's development. Detailed instructions on the implementation of the programme are provided. WLR provides books and stories that are colourful, attractive, neither religious nor based on ideology, age-appropriate and, importantly, in the native language of the child (Hanemann, 2018; Reina, 2019).

Several research studies demonstrated the effectiveness of WLR for promoting children's environmental knowledge and behaviour (Mahanseh, Romanowski, & Dajani, 2017), their executive functions (Dajani, Al Sager, Placido, & Amso, 2019) and their psychosocial health (Yazji, 2014). Yet, what has not been studied is whether WLR can improve children's attitudes towards reading and their reading practices, as potential mechanisms underlying the development of reading skills.

## The present study

The primary goal of the present study was to test the impact of the WLR programme on children's attitudes towards reading and their reading practices. Using a pre-intervention/post-intervention design, we investigated changes in reading attitudes and practices among children who regularly participated in WLR read-aloud sessions over 4 months. We expected to find a significant improvement in reading attitudes and practices from

pre-intervention to post-intervention. In addition, we included a comparison group of children at post-intervention who did not participate in the WLR programme and compared their reading attitudes and practices with the WLR group. After establishing baseline equivalence (i.e., equivalence in pre-intervention reading attitudes and practices of children in the WLR group and reading attitudes and practices of children in the comparison group), we expected to find significant higher post-intervention scores for reading attitudes and practices of children in the WLR group compared with the comparison group. Based on previous literature suggesting that reading attitudes become more negative with age (Kush & Watkins, 1996) and that boys have less positive reading attitudes than girls (McKenna et al., 2012), we controlled for children's age and gender in the analyses.

## Method

### *Participants*

The present study used data from the WLR programme that was supported by UNICEF (Programme Cooperation Agreement Number 8/2015) between 2015 and 2018 as part of the nationwide 'Learning for all' campaign in Jordan. During that period, WLR targeted in total 12,750 children across the country. Data for the present investigation were collected during the last year of the project's funding period.

Prior to data collection, WLR ambassadors asked parents to sign consent forms to allow data collection from their child. Data were available from 1,304 children (59% girls) who participated in read-aloud sessions facilitated by 45 trained WLR ambassadors. At pre-intervention, children were, on average, 7.18 years old ($SD$ = 2.16; range 4–14 years). The time between pre-intervention and post-intervention was 16 weeks. Children were recruited from 10 governorates in Jordan, which were grouped geographically into three regions: north (Irbid, Ajloun and Mafraq; 17.4% of children), middle (Amman, Zarqa, Balga and Madaba; 34.3% of children) and south (Maan, Tafila and Karak; 48.3% of children). In addition, when post-intervention data were collected for the WLR group, comparison group data were collected from 414 children (59% girls). Children in the comparison group were, on average, 8.50 years old ($SD$ = 1.67; range 4–14 years) and recruited from the same three regions (north: 21.5% of children; middle: 49.1% of children; south: 29.4% of children). To avoid children in the comparison group from being inadvertently exposed to the intervention, we checked if they had attended a reading programme prior to study participation. Children who indicated that they participated in WLR, or any other reading programme, were excluded from the comparison group.

Limited resources prevented the collection of family demographic information from parents, but the children's survey included a question that asked about the number of books in the household, which has been shown as a robust indicator of differences in families' economic situation and educational resources (e.g., Evans, Kelley, Sikora, & Treiman, 2010). In the present sample, households owned, on average, 22 books ($SD$ = 291.37; missing data for 480 children, 28%). An independent samples $t$-test indicated no significant difference in the number of books reported between the WLR group ($M$ = 22.67) and the comparison group ($M$ = 18.18), $t = -.24$, $p = .812$.

### *Procedure of We Love Reading intervention and data collection*

After receiving the training, volunteers (called WLR ambassadors) received packages of 25 different storybooks in Arabic to read aloud to a group of 25–40 children in their local

communities. Ambassadors established informal libraries in their neighbourhoods. As WLR is a community-based reading intervention, ambassadors were also responsible for recruiting children from their neighbourhoods, choosing a specific weekly time, gathering the children regularly and reading aloud to them. After each read-aloud session, children took a book home until the next session when they could exchange it for a new one. Read-aloud sessions took place once a week over 4 months (in total, 16 sessions), and each session lasted 30–45 minutes. At the beginning of each session, ambassadors took children's attendance. On average, children in the WLR group attended 11 reading sessions ($SD$ = 5.39).

Data were collected twice (pre-intervention and post-intervention) by trained volunteers using a standardised protocol. They sat with each child individually and assisted her/him in completing the assessment tools. The pre-intervention assessment was completed before the start of the WLR programme; the post-intervention assessment for children in the WLR group was completed within 2 weeks after completion of the programme. Children in the comparison group completed the assessment tools during the same time period when post-intervention data were collected from the WLR group.

### *Measures*

*Reading attitudes.* Children's attitudes related to reading for pleasure were assessed with the Elementary Reading Attitude Survey (ERAS; McKenna & Kear, 1990). The ERAS was chosen for its simplicity and because it can be answered in a matter of minutes. The ERAS consists of 20 items of which seven relate to attitudes towards reading for pleasure. In the present study, these seven items were used and children were asked to respond by choosing one of three faces that best reflected the child's feeling towards the item (happy, neutral or unhappy).

*Reading practices.* We developed a self-report questionnaire to measure children's practices related to reading for pleasure. The item pool was, in part, constructed by adapting items from the ReadWriteThink (2006) reading habits survey and by developing new items. Because the goal of this study was to explore changes in the frequency of children's practices in relation to reading for pleasure, in the present study, all reading practice items used an ordinal response scale; children were asked to check one of four frequency responses (i.e., always, often, sometimes or never) that best reflected their reading practices. The final questionnaire consisted of 10 items.

In constructing the measures, experts from Jordan were consulted to ensure the relevance of the items for the Jordanian context. In addition, the measures were piloted. Some changes in the wording were made to make the items clearer for the children according to the experts' suggestions and the readability of the items in Arabic.

### *Analytical strategy*

Several analytical steps were taken. First, the comparability of the measures was tested using confirmatory factor analyses (CFAs). Using data from the WLR group, the first set of CFAs tested the structure of each measure at the two measurement points to identify the best fitting model. Modifications and adjustments to the models were considered to obtain good model fit following standard practice, such as dropping items from the scales

(Wang & Wang, 2012). We validated the CFAs by using the data from the comparison group. In addition, we tested for configural, metric and scalar measurement invariance of the structure of each measure across the WLR group and the comparison group. We ran two multigroup CFAs: one using the pre-intervention data and one using the post-intervention data from the WLR group. The next set of CFAs, that is, multiwave CFAs, tested for configural, metric and scalar measurement invariance of the structure of each measure across both measurement points in the WLR group. For all CFAs, model fit was evaluated according to structural equation modelling fit statistics (root mean square error of approximation [RMSEA] $< 0.08$, comparative fit index [CFI] $> 0.90$, Tucker–Lewis index [TLI] $> 0.90$, standardised root mean residual [SRMR] $< 0.08$; Wang & Wang, 2012).

After establishing sufficient invariance of the measures, we estimated changes in reading attitudes and practices for the WLR group in a structural equation modelling framework. The conditional models included child age and gender, the number of reading sessions attended and region (north, middle or south; north as reference group) as control variables. The final analytical step included the comparison group for which data were only available when the post-intervention data were collected for the WLR group.

All analyses were done in Mplus 8.1 (Muthén & Muthén, 2017). Assumptions for CFA and structural equation modelling are multivariate normality, linearity, independence, equality of variance and lack of multicollinearity. The assumptions were checked using histograms, scatterplots, residual plots and correlation matrices. Both measures used an ordinal scale; linearity and normality were dealt with in the modelling process. Missing data were handled with the full information maximum likelihood techniques, which have been shown to be more effective than other missing data methods such as listwise deletion (Allison, 2001).

## Results

### *Tests of measurement invariance*

Confirmatory factor analyses tested the structure of each construct, that is, reading attitudes and reading practices. The CFA on reading attitudes using pre-intervention data from the WLR group did not have good model fit (RMSEA = 0.102, CFI = 0.874, TLI = 0.811, SRMR = 0.096). In particular, item 2 ('How would you feel when someone reads a story to you?') and item 5 ('How would you feel if you go to a library or a book store?') did not show sufficient consistency with the construct and were thus dropped from the scale. The fit statistics increased and acceptable model fit was reached (RMSEA = 0.000, CFI = 1.00, TLI = 1.00, SRMR = 0.009). The model fit for the corresponding CFA on reading practices indicated an acceptable fit with no modifications (RMSEA = 0.082, CFI = 0.959, TLI = 0.948, SRMR = 0.062). The CFAs were repeated using post-intervention data; model fit was acceptable (reading attitudes[1]: RMSEA = 0.041, CFI = 0.993, TLI = 0.985, SRMR = 0.031; reading practices: RMSEA = 0.045, CFI = 0.990, TLI = 0.987, SRMR = 0.022). We then applied the same models to the comparison group data and found acceptable model fit (reading attitudes[1]: RMSEA = 0.057, CFI = 0.988, TLI = 0.976, SRMR = 0.034; reading practices: RMSEA = 0.045, CFI = 0.975, TLI = 0.968, SRMR = 0.029).

Multigroup CFAs were run to test for configural, metric and scalar invariance of the constructs across the WLR group and the comparison group. Configural invariance imposed the same model across groups but freely estimated the factor loadings and thresholds across groups. Metric invariance constrained the factor loadings to be the same across groups, and scalar invariance constrained both factor loadings and thresholds to be the same across groups. As the chi-squared difference test has been shown to have a high Type 1 error rate, change in CFI across the models ($>\pm 0.01$ considered the cut-off) was used (Sass, Schmitt, & Marsh, 2014). For reading attitudes, measurement invariance across groups was met with pre-intervention data from the WLR group (Table 1, model 1). However, when post-intervention data from the WLR group was used, metric invariance could not be established (CFI change $> 0.01$; Table 1, model 2). After isolating items with non-invariant factor loadings across groups (item 6: 'How would you feel if you stay at home reading stories and instead of playing electronic games?'), we reran the invariance model. This revised model suggested that measurement invariance could be established with post-intervention data (Table 1, revised model 2). We also reran the multigroup CFA using pre-intervention data from the WLR group (Table 1, revised model 1). Because we excluded item 6 during the process of establishing measurement invariance, we ran the initial CFAs again to test the structure of the revised reading attitudes scale.[2] Model fit was acceptable (WLR group pre-intervention: RMSEA = 0.000, CFI = 1.000, TLI = 1.000, SRMR = 0.011; WLR group post-intervention: RMSEA = 0.049, CFI = 0.994, TLI = 0.982, SRMR = 0.029; comparison group: RMSEA = 0.000, CFI = 1.000, TLI = 1.000, SRMR = 0.013). Omega values were extracted from these CFAs

**TABLE 1.** Measurement invariance of reading attitudes across groups: Change in CFI across models.

| | CFI | ΔCFI |
|---|---|---|
| Model 1: WLR group pre-intervention data and comparison group data[a] | | |
| Configural model | 0.999 | |
| Metric invariance | 0.995 | 0.004 |
| Scalar invariance | 0.992 | 0.003 |
| Model 2: WLR group post-intervention data and comparison group data[a] | | |
| Configural model | 0.993 | |
| Metric invariance | 0.979 | 0.014 |
| Scalar invariance | 0.978 | 0.001 |
| Revised model 1: WLR group pre-intervention data and comparison group data[b] | | |
| Configural model | 1.000 | |
| Metric invariance | 0.993 | 0.007 |
| Scalar invariance | 0.986 | 0.007 |
| Revised model 2: WLR group post-intervention data and comparison group data[b] | | |
| Configural model | 0.995 | |
| Metric invariance | 0.993 | 0.002 |
| Scalar invariance | 0.991 | 0.002 |

CFI, comparative fit index; WLR, We Love Reading.
[a]Items 2 and 5 dropped from the reading attitudes scale.
[b]Items 2, 5 and 6 dropped from the reading attitudes scale.

(0.823 [95% CI 0.796, 0.845], 0.847 [95% CI 0.822, 0.867] and 0.831 [95% CI 0.786, 0.863]; all values were significant $p < .001$). Standardised factor loadings and communalities for the remaining items of the reading attitudes scale are reported in Table 2.

For reading practices, measurement invariance across groups was met when pre-intervention data (Table 3, model 1) and post-intervention data (Table 3, model 2) from the WLR group were included in the models. We extracted omega values from the initial CFAs (WLR group pre-intervention: 0.968 [95C.I. 0.965, 0.971]; WLR group post-intervention: 0.985 [95C.I. 0.983, 0.987]; comparison group: 0.961 [95C.I. 0.952, 0.967]; all values were significant $p < .001$). Standardised factor loadings and communalities for the items of the reading practices scale are reported in Table 4.

Next, measurement invariance of the constructs from pre-intervention to post-intervention was tested in the WLR group, using multiwave CFAs. Configural invariance imposed the same model across time but freely estimated the factor loadings and thresholds across time. Metric invariance constrained the factor loadings to be the same across time, and scalar invariance constrained both factor loadings and thresholds to be the same across time. Multiwave CFAs were used to account for lack of independence in the data as these were repeated measures across time on the same individuals. In these

**TABLE 2.** Reading attitudes: Standardised loadings and communalities of items.

| Item[a] | Standardised loading | *SE* | $R^2$ | *SE* |
|---|---|---|---|---|
| 1. How would you feel if you read a story? | 0.395/0.540 (0.531) | 0.051/0.028 (0.063) | 0.156/0.292 (0.282) | 0.040/0.031 (0.066) |
| 3. How would you feel when someone gives you a story as a gift? | 0.821/0.819 (0.710) | 0.033/0.027 (0.055) | 0.675/0.671 (0.504) | 0.054/0.045 (0.078) |
| 4. How would you feel if you stay at home reading stories instead of playing outside? | 0.770/0.794 (0.842) | 0.033/0.030 (0.039) | 0.592/0.631 (0.709) | 0.052/0.048 (0.065) |
| 7. How would you feel if you stay at home reading stories instead of watching TV? | 0.803/0.836 (0.785) | 0.021/0.031 (0.028) | 0.644/0.699 (0.616) | 0.034/0.052 (0.044) |

*Notes*. The first number refers to We Love Reading (WLR) group pre-intervention data and the second number refers to WLR group post-intervention data. The information for the comparison group is in parentheses.
[a]Items 2, 5 and 6 dropped from the reading attitudes scale.

**TABLE 3.** Measurement invariance of reading practices across groups: Change in CFI across models.

| | CFI | ΔCFI |
|---|---|---|
| Model 1: WLR group pre-intervention data and comparison group data | | |
| Configural model | 0.968 | |
| Metric invariance | 0.968 | <0.001 |
| Scalar invariance | 0.968 | <0.001 |
| Model 2: WLR group post-intervention data and comparison group data | | |
| Configural model | 0.988 | |
| Metric invariance | 0.983 | 0.005 |
| Scalar invariance | 0.984 | 0.001 |

CFI, comparative fit index; WLR, We Love Reading.

**TABLE 4.** Reading practices: Standardised loadings and communalities of items.

| Item | Standardised loading | *SE* | $R^2$ | *SE* |
|---|---|---|---|---|
| 1. Do you read stories during free time? | 0.932/0.958 (0.899) | 0.011/0.011 (0.028) | 0.868/0.919 (0.808) | 0.020/0.022 (0.050) |
| 2. Do you exchange stories with your friends? | 0.804/0.918 (0.777) | 0.019/0.015 (0.053) | 0.647/0.843 (0.604) | 0.030/0.027 (0.082) |
| 3. Do you ask your parents to buy you stories? | 0.671/0.877 (0.772) | 0.041/0.019 (0.060) | 0.450/0.769 (0.595) | 0.055/0.033 (0.093) |
| 4. Do you talk to your friends about stories you read? | 0.888/0.949 (0.851) | 0.012/0.015 (0.033) | 0.789/0.900 (0.724) | 0.022/0.028 (0.057) |
| 5. Do you read stories every day? | 0.856/0.852 (0.814) | 0.016/0.034 (0.027) | 0.732/0.726 (0.663) | 0.028/0.057 (0.043) |
| 6. Do you read stories to your siblings at home? | 0.902/0.958 (0.891) | 0.012/0.012 (0.028) | 0.814/0.919 (0.793) | 0.021/0.023 (0.049) |
| 7. Do you read stories during school break? | 0.948/0.976 (0.911) | 0.010/0.008 (0.025) | 0.899/0.952 (0.829) | 0.019/0.016 (0.045) |
| 8. Do you tell your family the story you read? | 0.931/0.969 (0.822) | 0.010/0.011 (0.030) | 0.866/0.938 (0.777) | 0.018/0.022 (0.052) |
| 9. Do you read stories in weekends? | 0.936/0.975 (0.901) | 0.009/0.007 (0.025) | 0.875/0.950 (0.811) | 0.018/0.015 (0.046) |
| 10. Do you ask your family to read stories to you? | 0.497/0.831 (0.618) | 0.053/0.027 (0.111) | 0.219/0.690 (0.382) | 0.050/0.045 (0.137) |

*Notes*. The first number refers to We Love Reading (WLR) group pre-intervention data and the second number refers to WLR group post-intervention data. The information for the comparison group is in parentheses.

models, the construct at post-intervention was regressed on the construct at pre-intervention and the residual variances for each indicator were allowed to correlate across time. The model fit for the configural model was acceptable for both scales (reading attitudes[2]: RMSEA = 0.037, CFI = 0.981, TLI = 0.964, SRMR = 0.043; reading practices: RMSEA = 0.034, CFI = 0.981, TLI = 0.977, SRMR = 0.070) and measurement invariance across time could be established (Table 5).

### *Changes in reading attitudes and practices*

The results of the analyses estimating change in reading attitudes and practices from pre-intervention to post-intervention in the WLR group indicated a significant increase in reading practices scores (by 0.64 *SD* units, $p < .05$) and reading attitudes scores (by 0.20 *SD* units, $p < .05$). When control variables were added to the models, results indicated significant effects of child age and gender, with higher scores for older children and for girls (Table 6).

In the final set of analyses, we compared the WLR group with the comparison group, using the single measurement in the comparison group (collected at the same time when post-intervention data were gathered for the WLR group). We first assessed the comparability of the data, using pre-intervention data from the WLR group and the data from the comparison group. In a second step, we compared the data from the comparison group with

**TABLE 5.** Measurement invariance across time (WLR group only): Change in CFI across models.

| | CFI | ΔCFI |
|---|---|---|
| Reading practices | | |
| Configural model | 0.981 | |
| Metric invariance | 0.982 | 0.001 |
| Scalar invariance | 0.982 | 0.000 |
| Reading attitudes[a] | | |
| Configural model | 0.981 | |
| Metric invariance | 0.985 | 0.004 |
| Scalar invariance | 0.979 | 0.006 |

CFI, comparative fit index; WLR, We Love Reading.
[a]Items 2, 5 and 6 dropped from the reading attitudes scale.

**TABLE 6.** Effects of covariates on reading attitudes and practices.

| | Reading attitudes ($R^2$ = 0.22**) | | | Reading practices ($R^2$ = 0.07*) | | |
|---|---|---|---|---|---|---|
| | *B* | *SE* (*B*) | *β* | *B* | *SE* (*B*) | *β* |
| Age | 0.02 | 0.01 | 0.06** | 3.51 | 0.46 | 0.61** |
| Gender[a] | 0.17 | 0.03 | 0.13** | 0.46 | 0.11 | 0.05** |
| Number of reading sessions attended | 0.01 | 0.01 | 0.07 | −0.09 | 0.05 | −0.01 |
| Region[b]: Middle | 0.00 | 0.05 | 0.00 | −0.06 | 0.23 | −0.01 |
| Region[b]: South | 0.02 | 0.06 | 0.02 | −0.13 | 0.25 | −0.02 |

[a]1 = male, 2 = female.
[b]North is reference group.
*$p < .10$.
**$p < .01$.

post-intervention data from the WLR group. For reading attitudes, the difference between the WLR pre-intervention data and the comparison group data was not significant ($p = .80$), and thus, baseline equivalence could be assumed. For reading practices, the difference between the WLR pre-intervention data and the comparison group data was significant, favouring the comparison group by 1.06 points ($p < .001$). Therefore, baseline equivalence could not be assumed. However, because the comparison group actually started higher on this measure, it was reasonable to still run the comparison with the WLR group post-intervention data. The difference between the WLR group post-intervention data and the comparison group data was significant for reading attitudes scores (difference of 0.44 *SD* units, $p < .05$) and for reading practices scores (difference of 0.40 *SD* units, $p < .05$),[3] favouring the WLR group.

## Discussion

Reading is an important gateway to everyday life and lifelong learning. Yet, in many Arab nations, including Jordan, there is a lack of a reading culture. Despite high literacy rates, reading is not a popular activity in Jordan (United Nations Development Program,

Jordan – Arab Reading Index, 2016). However, children who read very little are at risk of not reaching their full developmental potential (Clark & Rumbold, 2006). The lack of interest in reading among Jordanian youth may be due to a failure to cultivate reading habits. This study tested the impact of a community-based reading intervention, WLR, on children's attitudes and practices related to reading for pleasure. The WLR programme uses read-aloud sessions, thus building on scientific evidence showing that reading aloud is key in fostering the pleasure of reading (Ledger & Merga, 2018). The results of the present investigation provide initial evidence for improvements in reading attitudes and practices after participating in the WLR programme. Although small, the effects of the WLR programme on children's attitudes and practices related to reading for pleasure add to the literature, suggesting that reading aloud to children may foster their engagement with books (e.g., Klass, Dreyer, & Mendelsohn, 2009; Ledger & Merga, 2018; MacDonell, 2004).

Overall, the regular read-aloud sessions that were offered by nonprofessional community volunteers led to small changes in children's reading attitudes and practices. The changes were independent of children's age and gender. Furthermore, it is worth noting that although the WLR group started off lower in their reading practices scores, the increase during the WLR intervention was large enough to outperform comparison group children at post-intervention (i.e., have higher reading practices scores than comparison group). Changes in reading practices related to reading stories for pleasure more often as well as to social activities related to reading, for example, exchanging stories with friends, talking about stories with friends or family or reading stories to siblings. In addition, changes in reading attitudes might indicate an increased enjoyment of reading and appreciation of books among children who participated in the WLR programme. Together, participation in a community-based reading programme, such as WLR, may help to promote the development of a reading culture in children's communities (Al-Mahrooqi & Denman, 2016).

The use of nonprofessional community volunteers to encourage reading in children has expanded over the past years, yet the effect on children's reading outcomes has been debated (Nichols, Kim, & Nichols, 2020). Our findings of significant improvements, although promising, may, at a first glance, seem contradictory to previous research finding no significant change or only slight gains in reading for children who received support from nonprofessional community volunteers (e.g., Nichols et al., 2020). A meta-analysis on the effectiveness of volunteer programmes also found that 'many of the individual studies, standing alone, do not show significant program effects' (Ritter, Barnett, Denny, & Albin, 2009, p. 20). However, the overall effect of volunteer programmes on school-aged children's reading outcomes was positive and statistically significant. Moreover, no differences in effectiveness were found between programmes using parent, college-age, or community volunteers (Ritter et al., 2009). The authors thus concluded that volunteer programmes may be effective for improving children's reading skills. One potential reason for the limited impact of community volunteers in some studies might be that nonprofessional community volunteers lack conceptual understanding of reading and literacy and expertise in pedagogical approaches to reading and literacy instruction (Nichols et al., 2020). In particular, when community volunteers are expected to assist with reading activities in the classroom, more intensive literacy training seems warranted to build the skills needed for volunteers to make an impact on children's literacy and reading development (Nichols et al., 2020). In the WLR programme, trained community volunteers read aloud to children in public spaces in children's neighbourhoods, instead of assisting with reading activities and instruction in the classroom. Volunteers in the WLR programme establish so-called

libraries where they build a collection of books that children can take home to read (Hanemann, 2018). When children otherwise may have limited access to reading resources, in Jordan, for example, because of the lack of a reading culture, such informal libraries may change their reading habits. Our results showed a small but significant positive effect of the WLR programme on children's reading attitudes and practices. This finding is consistent with an intervention approach in rural China where an in-class library programme significantly changed fourth-grade and fifth-grade students' reading habits (Yi et al., 2018). Nevertheless, providing books alone may not be sufficient. It might have been the combination of the library and the read-aloud sessions that set the WLR programme apart from other programmes involving nonprofessional community volunteers. The read-aloud sessions not only exposed children to reading but also provided them with storytelling experiences, a tradition that is deeply rooted in the Arab culture (Hanemann, 2018). Thus, the read-aloud sessions were culturally appropriate and responsive to local customs, which might have facilitated the positive changes in reading attitudes and practices. Yet, it is important to emphasise that the effects were small. One possible explanation could be that the intervention was not one on one and children participated in groups in the read-alouds that were large, between 25 and 40 children per WLR ambassador. In addition, while WLR ambassadors were trained to use an engaging reading style (e.g., use voices and gestures, Lane & Wright, 2007), other effective elements of read-alouds, for example, embedded active teaching (Duursma et al., 2008), could not be implemented. In developing community-based reading interventions further, it might be important to also focus on the dialogue between the community volunteer and the children to enhance children's active engagement in the read-aloud (Duursma et al., 2008; Lane & Wright, 2007).

The study is not without limitations that need to be considered when interpreting the findings. Most importantly, limited resources did not allow us to conduct a randomised controlled trial to examine the causal effects of the WLR programme on children's reading attitudes and practices. In an attempt to address the caveats of the research design applied to the present study, a comparison group was added at the second time point of data collection, recruiting children from the same three regions in Jordan where WLR group children were recruited. However, the sample size of the comparison group was smaller and the assignment to WLR group and comparison group was not random. In addition, children in the comparison group were older than children in the WLR group and therefore might have had greater reading skills. Thus, results have to be interpreted with caution. We also could not implement procedures for monitoring fidelity of implementation. Although community volunteers were trained prior to the intervention and requested to write reports during the programme, and WLR members visited the libraries and interviewed volunteers, parents and children (Hanemann, 2018), it is possible that the programme might not have been delivered as intended. It is therefore important for future studies to include strategies for monitoring and measuring implementation fidelity that are culturally appropriate and feasible in the local context (Breitenstein et al., 2010). In addition, reported results can only speak to effects of the WLR programme on changing children's reading attitudes and practices in the short term. No conclusions can be drawn about effects that may or may not exist in the long term. This might be particularly relevant in the Jordanian context where there is no reading culture and reading 'has traditionally been considered as boring or a waste of time outside academic or religious contexts' (Hanemann, 2018). The WLR programme may have the potential to provide children with socially and emotionally rewarding experiences of reading that may lead to a positive attitude towards reading (Duursma

et al., 2008; Lane & Wright, 2007). Finally, methodological challenges, in particular, in the measurement of reading attitudes, call for caution in interpreting the findings. Three items of the ERAS subscale on reading attitudes did not show sufficient consistency with the construct and were dropped. One of these items, for example, refers to visits to a library or book store. Children might have had limited experiences with such reading resources and therefore used a different frame of reference when responding to the item, compared with the other items of the measure that showed sufficient consistency with the construct. In addition, the three-point response scale may have lacked the necessary sensitivity. Thus, there is a need for more research to shed light on the beliefs regarding reading in general, and recreational reading specifically, among Jordanian children. Because a reading culture is influenced by cultural belief systems, it will be important for future research to create locally developed assessment tools that may be better able to detect changes in reading habits.

Despite the commitment of the Jordanian government to resolutely address the country's literacy challenges, there is a lack of interest in reading, resulting in many children in Jordan not being regularly exposed to reading. This study tested the effects of the WLR programme on children's reading attitudes and practices. The WLR programme relies on nonprofessional community volunteers who weekly read to children in public spaces easily accessible for children in the neighbourhood. The findings provide initial evidence that the WLR programme may increase children's engagement with reading, for example, change recreational reading habits. These findings have implications for mitigating risks of early aliteracy among children (OECD, 2011b; Olufowobi & Makinde, 2011). Being exposed to read-aloud experiences can be important in developing and keeping children's interest in reading for pleasure.

## Conflict of interest

Rana Dajani is the founder and director of WLR, an independent non-profit, non-government organisation in Jordan. Rana Dajani was not involved in the collection and analyses of the presented data.

## Acknowledgements

The WLR programme was supported by UNICEF (Programme Cooperation Agreement Number 8/2015) between 2015 and 2018.
We wish to thank Susanna Fullmer for her contribution to the revision of the statistical analyses. Randa Mahasneh and Antje von Suchodoletz Equal contribution; co-first authors.

## Data availability statement

The data that support the findings of this study are available from the corresponding author (AvS) upon reasonable request.

## Notes

1. Items 2 and 5 dropped from the reading attitude scale.
2. Items 2, 5 and 6 dropped from the reading attitudes scale.
3. The analyses controlled for child age and gender.

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*Received 14 January 2020; revised version received 27 November 2020.*

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