



Promoting respectful maternal and newborn care using the Dignity game: A quasi-experimental study

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ARTICLE INFO

Keywords:

Nurse-midwife education
Game-based learning
Sub-Saharan Africa
Relational care
Respectful maternity care
Woman-centred care

ABSTRACT

Aim: This study assessed a) the impact of playing the *Dignity* board game on participants' understanding of respectful maternal and newborn care and b) participants' perceptions of how the game influenced their subsequent practice in Malawi and Zambia.

Background: Nurse-midwives' poor understanding of respectful maternal and newborn care can lead to sub-standard practice; thus, effective education is pivotal. Used in several disciplines, game-based learning can facilitate skills acquisition and retention of knowledge.

Design: a quasi-experimental study, using mixed-methods of data collection.

Methods: Data were collected between January and November 2020. Nurse-midwives (N = 122) and students (N = 115) were recruited from public hospitals and nursing schools.

Completion of paper-based questionnaires, before and after game-playing, assessed knowledge of respectful care principles and perceptions around behaviours and practice. Face-to-face interviews (n = 18) explored perceived impact of engaging with the game in clinical practice. Paired and unpaired t-test were used to compare scores. Qualitative data were analysed and reported thematically.

Results: The study was completed by 215 (90.7 %) participants. Post-test scores improved significantly for both groups combined; from 25.91 (SD 3.73) pre-test to 28.07 (SD 3.46) post-test (paired t = 8.67, 95 % confidence interval 1.67–2.65), indicating an increased knowledge of respectful care principles. Nurse-midwives performed better than students, both before and after. In Malawi, the COVID pandemic prevented a third of nurse-midwives' from completing post-game questionnaires. Qualitative findings indicate the game functioned as a refresher course and helped nurse-midwives to translate principles of respectful care into practice. It was also useful for self-reflection.

Conclusions: The *Dignity* board game has the potential to enhance understanding and practice of respectful maternal and newborn care principles in low-resource settings. Integration into nursing and midwifery curricula and in-service training for students and healthcare workers should be considered.

Tweetable abstract

This study assessed the 'Dignity' board game among nurse-midwives and students using mixed-methods research. Post-game scores showed

an increase in knowledge of respectful care principles. The game was also useful for self-reflection.

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1. Introduction

In the last decade, respectful maternal and newborn care (RMNC) has received global attention (The Lancet, 2015). RMNC is defined as a person-centred approach valuing the woman's preferences, choices and needs, ensuring privacy and confidentiality, and preventing harm and mistreatment during pregnancy and childbirth (World Health Organization, 2018). The Respectful Care Charter (White Ribbon Alliance, 2019) and international recommendations (World Health Organization, 2018) emphasise the vital role of woman-midwife interpersonal relationship for the potential of creating a positive childbirth experience for the woman and facilitating good pregnancy outcomes. Current debate also points towards a shift from a medicalised model of birth to a return to a woman-centred care approach, encouraging woman's agency and individualised decisions during labour and birth (Bharj et al., 2016; Clesse et al., 2018).

Interventions promoting RMNC operate at different levels (Asefa, 2021). At an individual level, provision of respectful and dignified care goes beyond the natural caring attitude (Chapman and Clucas, 2014) and involves relational care (Gangopadhyay, 2012) which can be learnt in order to turn spontaneous kindness into professional caring approaches. These skills are at the core of nursing and midwifery professions (Nursing and Midwifery Council, 2018), although in clinical practice, they may be overlooked in favour of treatment-based approaches (Lavender et al., 2021).

Pre-service programmes for nurse-midwives are not always explicit around RMNC components, especially in Low- and Middle-Income Countries (LMICs) (Burrowes et al., 2017). Moreover, use of didactic approaches, with limited opportunities for experiential learning, leaves the application of respectful care principles at a conceptual level. In response, some initiatives in sub-Saharan Africa have piloted innovative ways of teaching RMNC. For instance, Wilson-Mitchell et al (Wilson-Mitchell et al., 2018). engaged midwives in role play, small group discussions and video around respectful care, to stimulate knowledge sharing, problem-solving and self-reflection. Similarly, simulation-based training was used in Ghana to integrate RMNC concepts into emergency and obstetric care (Afulani et al., 2019). Both initiatives encouraged an interactive approach; a key element of game-based learning. Used in nursing and midwifery, game-based learning offers an enjoyable and participatory experience for learners and has been associated with good clinical performance (Min et al., 2022). The non-intimidating environment in which knowledge is shared (Blakely et al., 2009) enables players to make mistakes without compromising women's health (Lavender et al., 2019). Games also promote indirect acquisition of communication skills, collaboration and leadership (Uhles et al., 2008) and can help staff to self-reflect on their own practice, and change behaviour.

1.1. Intervention – The Dignity board game

Previous experience with educational games for midwives (Laisser et al., 2019) and the intention to respond to compelling evidence around occurrence of disrespect and abuse in childbirth settings (Bowser and Hill, 2010) resulted in the development of a novel game called *Dignity* (Fig. 1). Developed by Dr Maclean, consultant midwife at Swansea University (UK) in collaboration with our team (TL, CB, VAD) and inputs from members of the Lugina Africa Midwife Research Network - LAMRN (Lugina African Midwives Research Network, 2015) the game promotes understanding and practice of RMNC in the context of a woman's childbirth experience. Players need to complete a journey and collect cards (Supplementary file 1), which are combined to determine the final score and the winner. The journey has different squares including bridges, landslides and question marks. Bridges allow players to progress fastest, landslides force players to step back; question marks involve responding to a query. The dice is played to progress; when players land on a square the corresponding card is picked and read aloud (bridge or landslides cards) or is used to ask questions (question card) to another

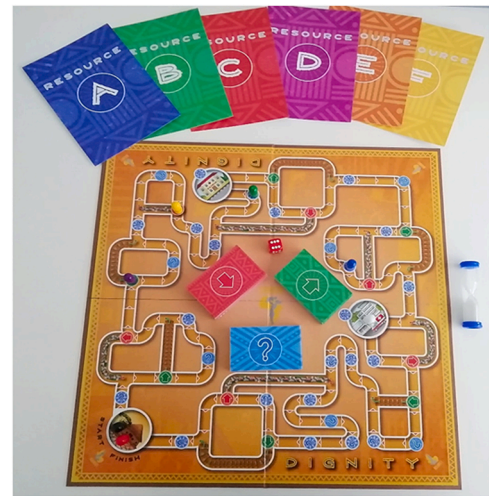


Fig. 1. Dignity board game.

player. The game includes an hourglass to limit response time.

1.2. Theoretical model

Kirkpatrick's four-level model informed the evaluation of *Dignity* (Kirkpatrick and Kirkpatrick, 2006). This framework offers a simple and operational approach for assessing educational programmes. A low-cost assessment, in stage one, provides the basis for the three subsequent stages; all measuring the effectiveness of the educational activity under assessment. The first stage (reaction) was already completed, thus this paper reports on level two (learning) and three (behaviour) of the evaluation. The duration of the study and its preliminary nature meant level four (results), assessing game's impact on maternal and perinatal outcomes, was not included.

The first assessment (level one) comprised of gaining participants' reactions towards the game. This was completed in 2018, with 45 clinical and student midwives during the LAMRN International Conference in Malawi and workshops in Tanzania and Zimbabwe. Relevance to practice, ease of playing and likeability were measured through a 10-point Likert scale questionnaire. Additional open-ended questions were included to obtain feedback on use, gaming instructions and resource cards. Kirkpatrick suggests evaluating every educational activity at this level to incorporate users' feedback and enhance the chance of the educational intervention to stimulate effective learning (Kirkpatrick and Kirkpatrick, 2006). Players across various countries expressed positive comments about the game and considered it interesting, interactive and easy to follow. Suggestions for improvements included: use of colour to improve appearance, encouraging players to explain their responses, and to define a strategy to control the game if two players meet on the same square. These suggestions informed changes to the game and instructions. In the second stage (level two) before (pre-test) and after (post-test) assessments were used to measure learning and skills development. Level three (behaviour), explored through interviews, was completed by asking nurse-midwives about how they perceived their practice was influenced and impacted by engaging with the game.

Provision of respectful and dignified care to all women is paramount in contributing to the reduction of maternal and neonatal mortality and morbidity in high-burden settings. Therefore, it is crucial that nurse-midwives understand the principles and implications of providing RMNC, and how best to deliver it. The study intended to respond to the following research questions: "Does playing *Dignity* a) improve knowledge and understanding of RMNC among nurse-midwives and students?" and b) "influence practice of RMNC among nurse-midwives?". The aim of the study, therefore, was to test *Dignity* to promote understanding and practice of RMNC in facilities in Malawi and Zambia. The

specific objectives involved 1) assessing the impact of *Dignity* on knowledge of RMNC and knowledge and understanding of the rights of the childbearing woman and 2) to explore the experience of game use and perceived impact on clinical practice among nurse-midwives.

2. Methods

2.1. Study design

A quasi-experimental design was used to assess the effectiveness of the game. Before and after designs are considered appropriate when resources are limited and practical or ethical barriers reduce the possibility to conduct a trial (Eccles et al., 2003). Research midwives took field notes of changes happening in facilities between pre- and post-test completion, for example introduction of curtains between beds, change of senior leadership, and capacity building activities in a similar area. These changes were also explored during interviews with nurse-midwives to ensure any observed variation would be attributable to the intervention. The Transparent Reporting of Evaluation with Non-randomised Designs (TREND) (Des Jarlais et al., 2004) was followed to report this study (Supplementary file 2).

2.2. Setting and participants

The study took place in a district hospital and a health centre in Malawi and three facilities in Zambia: a district hospital, a first level hospital, and a referral clinic. All qualified nurse-midwives working in the maternity department were included based on their availability during the study period (Jan – Mar 2020). Qualified nurse-midwives were involved, as evidence from LMICs identified them among those cadres behaving disrespectfully towards women (Bradley et al., 2016). Students were also involved to assess the game as a learning aid and for potential inclusion into school curricula. They needed to be enrolled in a degree programme in Nursing and Midwifery and to have completed four to six weeks clinical placement in the maternity unit. Two schools of midwifery (one in each country), with more than 100 students registered, were involved in the study.

As nurse-midwives are the most influential caregivers to women, a purposive sample of this cohort was selected for qualitative data. Maximum variation in terms of years of qualification, age, and geographical location was pursued among participant players who also volunteered to be interviewed.

2.3. Sample size

The lack of previous quantitative data around nurse-midwives' knowledge of RMNC and the adoption of a pragmatic approach led to the assumption that participants would have a generic awareness of respectful care. This was reflected in 50 % of questionnaires being correctly completed in this study, corresponding to a score of at least 18/35 points. To detect a 10 % improvement in knowledge, with 5 % significance and 80 % power, a sample of 96 nurse-midwives and 96 students was needed. A ten percent margin of improvement was agreed, amongst the team (TL, CB, VAD), to be clinically significant. To allow for drop-out post-test, a pragmatic decision to recruit at least 100 nurse-midwives and 100 students, equally split between countries, was made. Perceptions of how game-based learning translated into practice were explored through interviews with a purposive sample of 16 midwives, three months post-gaming.

2.4. Recruitment process

Nurse-midwives were recruited in hospitals, through posters placed in clinical areas and rest rooms. Students were recruited during classes or breaks by research assistants external to their institution. Researchers ensured that during recruitment and the consent process, none of the

faculty's lecturers were present. Students were reassured that their participation did not influence their assessment, or future participation in other studies. Written and verbal information given to potential participants highlighted the need to complete the post-test three months later. It was made clear that participation was voluntary, and anyone could drop out at any time during implementation. A minimum of 24 h was given to consider taking part. Game sessions required a minimum of six to eight players; thus, participants were organised in groups based on availability, although nurse-midwives and students were kept separate. Participants were to play the game once and had between 45 min and two hours to complete it. Game playing, facilitated by a research midwife, were organised on days where nurse-midwives were off-duty or at the end of the morning shift to avoid altering the number of staff present in the ward. For students, gaming took place during breaks within their academic calendar. Both groups were remunerated for their time. These sessions took place in midwifery school board rooms, hospital rest rooms or outdoor spaces. After completing these sessions, the board games were distributed among the facilities and the schools of midwifery for further unfacilitated playing. Data regarding number of games played was not consistently recorded but was explored during interviews with nurse-midwives and spanned between one and four times. Written consent was confirmed and collected at each stage.

Ethical approval was gained from The University of Manchester Ethics Committee (ref: 2019-7958-12195, 14/11/19), College of Medicine Research and Ethics Committee, Malawi (ref: P.09/19/2794, 22/11/19), and National Health Research Authority and Ethics and Science Converge Institutional Review Board, Zambia (ref: 2019-Sep-099, 04/12/19). Formal approval was also obtained from participating facilities. Use of unique study numbers on participants' questionnaires enabled matching of pre- and post-tests, without revealing participants' identity, thus protecting their confidentiality.

2.5. Data collection

2.5.1. Quantitative data

Evaluation of *Dignity*, was completed using a questionnaire which included three sections: 1) a hypothetical scenario of a pregnant woman accessing care; 2) open-ended questions around RMNC principles, based on the old version of the Respectful Care Charter (White Ribbon Alliance, 2011) and 3) ten statements around attitudes. In section one, participants need to identify 18 examples of disrespectful and abusive care experienced by a woman; section two required the participant to list the principles of RMNC. The last section included ten true/false statements around correct and incorrect behaviours. The questionnaire received review and input from senior and early career researchers and from LAMRN members. They suggested changes to the scenario, to make it more realistic, and more appropriate formulation of the statements. The tool was piloted in Zambia with a sample of students (n = 5) and nurse-midwives (n = 6) prior to use. A pre-defined marking grid was used to determine the score for each participant. One point was assigned for every disrespectful behaviour identified in the scenario (18 points), one point for each correctly entered RMNC principle (seven points) and each correct sentence on attitudes (ten points). Thirty-five was the maximum overall score obtainable. In the case of missing values, it was agreed that these questionnaires would be excluded from the analysis. Pre- and post-test data collection occurred three months apart using the same questionnaire, administered by the research team. Two assessors per country reviewed the scores to avoid interpreter bias. A likeability questionnaire, using a 10-point visual analogue scale, provided participants' views on *Dignity* and was completed in both countries at the time of the post-test. Demographic details were also collected before the pre-test in Zambia and post-test in Malawi.

2.5.2. Qualitative data

A qualitative interpretivist epistemology was used to explore the game's perceived impact on practice. Participants were given a specific

information sheet and asked for written informed consent including permission to be audio-recorded, to which all agreed. A topic guide, adapted from a previous study (Laisser et al., 2019) conducted in a similar setting and piloted for face and content validity, was used to capture nurse-midwives' perceived impact of gaming on their clinical practice. All interviews were audio recorded and transcribed verbatim.

Completion of pre- and post-test data collection, playing of *Dignity* and the qualitative interviews occurred during the pandemic. Safety of participants and researchers was ensured through using of face masks, regular hand sanitising, and use of large rooms or outdoor space to always maintain social distancing.

2.6. Analysis

Demographics and scores were entered into SPSS (Version 26) for descriptive and comparative analysis. Pre- and post-test scores for each participant were compared using paired t-tests overall and separately for each country and each cohort. Independent t-test was used to compare nurse-midwives' scores against students. Likeability scores were also analysed descriptively.

An interpretive approach underpinned the analysis of qualitative interviews and open-ended questions of the likeability questionnaire. The 'Framework approach' was deemed appropriate as a systematic structure to analyse qualitative data, enabling use of existing categories, as well as identification of new ones (Ritchie and Spencer, 2002). Research midwives (two in Zambia and one in Malawi) who completed data collection (questionnaires and interviews) were involved in the analysis of their own transcripts, with support from VAD and CB. Initially, transcripts were read in full by each researcher for familiarisation, followed by manual coding and indexing, using a word processor. A thematic framework was jointly developed during virtual meetings and used to code the remaining transcripts, although an open stance was kept, allowing new concepts to be added (Saldaña, 2013). The framework helped to map participants' responses and identify similarities and differences between individual experiences and countries. Through open discussion among researchers, codes were then related to the emerging themes, linked to the study objectives. To ensure

dependability, two researchers independently coded half of the transcripts. Memos were kept throughout the process to increase rigour (Saldaña, 2013).

3. Results

3.1. Recruitment and completion of pre- and post-tests

In this study, 237 participants (122 nurse-midwives and 115 students) were recruited, of which the majority (n = 215, 90.7 %) returned pre- and post-test questionnaires (101 nurse-midwives and 114 students) and played at least one facilitated session of the game, lasting between 40 min to one and a half hour (recruitment and completion are presented in Fig. 2). Twenty-one nurse-midwives (13 in Zambia and eight in Malawi) were invited for interview. Two declined and one received an emergency call before the interview, thus the final sample included 18 participants.

COVID pandemic restrictions in both countries resulted in the post-test and interview data being collected between four and eight months after playing the game. In Zambia, 118 participants (58 nurse-midwives and 60 students) completed the post-test, whereas in Malawi, 97 participants (43 nurse-midwives and 54 students) did. A third of nurse-midwives (n = 19) had been transferred to other facilities and could not be reached to complete the study.

Participant demographics are included in Table 1. In Malawi these were collected during the post-test phase resulting in lower number than in the pre-test phase. In both countries, most participants did not receive formal training on RMNC prior to engaging with *Dignity*.

3.2. Pre- and post-intervention results

To assess the perceived impact of gaming, mean test scores before and after the intervention were compared, using a paired t-test. Eighty-nine percent of questionnaires (n = 210) were eligible for analysis; five were excluded due to missing values in one of the sections. Comparisons of sub-scores for individual components and the total score of the questionnaire, and for the overall sample and for nurse-midwives and

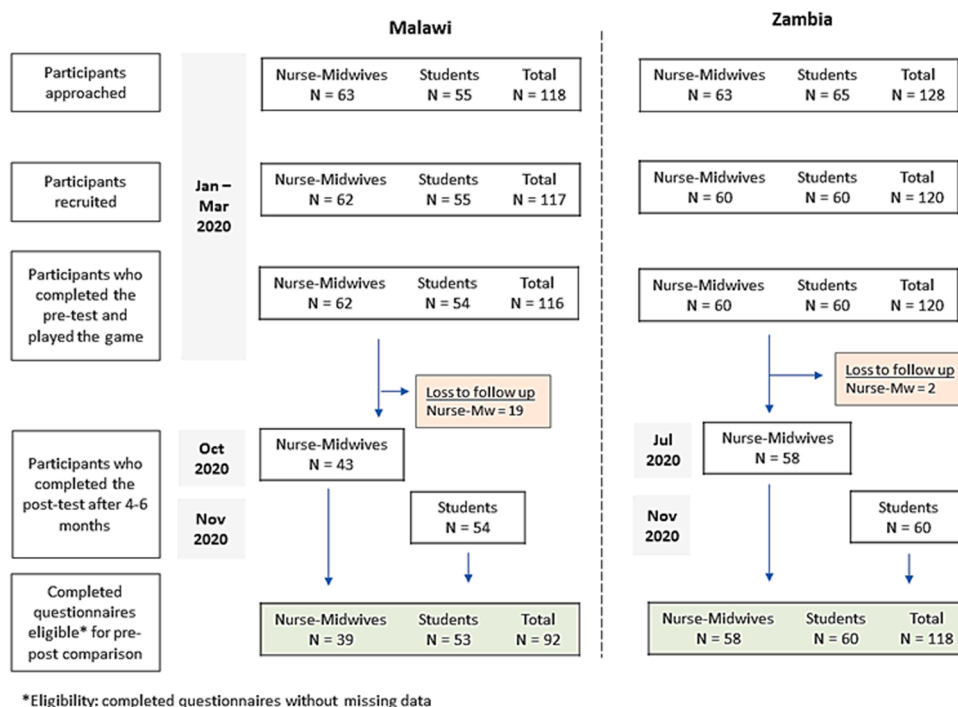


Fig. 2. Recruitment and completion flowchart.

Table 1
Participants' demographics.

| | Malawi | | Zambia | |
|----------------------------------------------------|---------------------------|--------------------|--------------------------|--------------------|
| | Nurse-midwives N = 41* | Students N = 53 | Nurse-midwives N = 60 | Students N = 60 |
| Age group | | | | |
| 18–20 years | – | 1 (1.9 %) | – | 12 (20.0 %) |
| 21–30 years | 36 (87.8 %) | 48 (90.6 %) | 25 (41.7 %) | – |
| 31–40 years | 5 (12.2 %) | – | 20 (33.3 %) | 36 (60.0 %) |
| > 40 years | – | 4 (7.5 %) | 15 (25.0 %) | 10 (16.7 %) |
| | | | | 2 (3.3 %) |
| Education | | | | |
| Certificate | – | – | 11 (18.3 %) | – |
| Diploma | 23 (56.1 %) | – | 2 (3.3 %) | 60 (100 %) |
| Degree | 18 (43.9 %) | 53 (100 %) | 47 (78.3 %) | – |
| Years since qualification as nurse-midwife | | | | |
| < 2 years | 3 (7.3 %) | NA | 18 (15.0 %) | NA |
| 2–5 years | 32 (78.0 %) | – | 21 (17.5 %) | – |
| 6–10 years | 3 (7.3 %) | – | 11 (9.2 %) | – |
| > 10 years | 3 (7.3 %) | – | 10 (8.4 %) | – |
| Facility of practice | | | | |
| Public tertiary hospital | – | 12 (22.6 %) | 18 (30.0 %) | 60 (100 %) |
| Public district hospital | 23 (56.1 %) | 35 (66.0 %) | 27 (45.0 %) | – |
| Public health centre | – | – | – | – |
| Community hospital | – | 5 (9.4 %) | – | – |
| | | 1 (1.9 %) | – | – |
| Last time participant worked in labour unit | | | | |
| Within last week | 38 (92.7 %) | 26 (49.1 %) | 45 (75.0 %) | 31 (51.7 %) |
| Within last month | 1 (2.4 %) | – | 8 (13.3 %) | – |
| Within last year or more | 2 (4.9 %) | 24 (45.3 %) | 7 (11.7 %) | 21 (35.0 %) |
| | | 3 (5.7 %) | – | 8 (13.3 %) |
| Training on RMNC | | | | |
| – Yes | 5 (12.2 %) | – | – | 5 (8.3 %) |
| – NO | 36 (87.8 %) | 53 (100 %) | 60 (100 %) | 55 (91.7 %) |

RMNC = respectful maternal and newborn care.

NA = Not applicable.

*For Malawi, the lower reported number of participants compared to the recruited sample is due to collection of the demographics in the post-test phase.

students separately were also included.

Table 2 presents the results of the pre- and post-test mean scores, combined and by country, for each cohort. Combined post-test scores for nurse-midwives and students showed a statistically significant improvement in mean score (SD) from 25.91 (3.73) pre-test to 28.07 (3.46) post-test (paired $t = 8.67$, 95 % confidence interval 1.67–2.65) and for each sub-scale. The increase in scores was evident for each cohort: nurse-midwives' pre-test mean score was 26.74 (3.77) and increased to 28.58 (2.94) in the post-test (paired $t = 4.74$, 95 % confidence interval 1.07–2.60). Students' pre-tests mean score was 25.20 (3.57) and increased to 27.64 (3.81) in the post-test (paired $t = 7.59$, 95 % confidence interval 1.80–3.07).

When analysed for each country, nurse-midwives from Malawi did not have a significant increase in mean scores between the two phases. Total mean pre-test score was 28.18 (2.56) and increased to 28.28 (3.58) post-test (paired $t = 0.19$, 95 % confidence interval -0.96 to 1.16). Mean scores slightly decreased in the post-test for scenario and attitudes sub-sections but were not statistically significant (Table 2). Students' mean scores were lower than nurse-midwives' scores in all sections of the pre-test questionnaire; but they all increased in the post-test questionnaire and the difference was statistically significant. In Zambia, both cohorts had increased post-test scores. The difference between pre- and

post-test was statistically significant overall and for each sub-section.

3.3. Comparison between countries and groups

Unpaired t -tests were used to compare the difference between countries and cohorts for pre- and post-test questionnaires (Supplementary file 3). Malawi's overall total score for both cohorts combined were higher than Zambia's in both phases: pre-test scores were 27.46 (3.08) vs 24.71 (3.77), unpaired $t = 5.81$, $df = 207.6$, 95 % confidence interval 1.81–3.68; post-test score were: 29.07 (3.04) vs 27.30 (3.58), unpaired $t = 3.87$, $df = 206.5$, 95 % confidence interval 0.87–2.67. In both pre- and post-tests students from Malawi had higher mean scores than those from Zambia (post unpaired $t = 6.19$, $df = 100.2$, 95 % confidence interval 2.57–4.98). For students, the mean difference between scores was significant for all sub-sections of the questionnaire expect for "knowledge of RMNC principles," in the post-test (unpaired $t = 1.66$, $df = 111$, 95 % confidence interval -0.94 to 1.07).

3.4. Likeability of the game

Table 3 presents agreement / disagreement with likeability statements. Median scores were highly positive overall among groups.

3.5. Perception of impact on clinical practice

The COVID-19 pandemic delayed completion of interviews within the initial timeframe. In Zambia, interviews took place in July 2020 (four months post-gaming), whereas in Malawi they occurred in October 2020 (eight months post-gaming). Eighteen interviews were completed. Five themes were generated from the data: *A good time to learn from each other; learning made easy and linked to practice, self-reflection for change, improved attitude and care provision and barriers to implementing respectful care*. These were common across the two countries, unless stated otherwise. Participants quotes are available in Supplementary file 4.

3.6. Theme 1 - A good time to learn from each other

Playing the game was an enjoyable experience for nurse-midwives. They had fun and liked its simplicity, engaging everybody in answering questions. Moreover, meeting to play the game was perceived as a unique opportunity to participate together in an educational activity. It also enabled work colleagues to meet, something that would not normally happen in these settings, and to all have a chance to contribute and learn from each other. Nurse-midwives in both countries, explained that the non-threatening environment created by *Dignity*, enabled senior and junior colleagues to interact as peers and learn together, thus they felt that hierarchies were diminished.

3.7. Theme 2 - Learning made easy and linked to practice

Participants felt that playing *Dignity* enhanced their comprehension of RMNC compared to other teaching methods. Some participants pointed out that didactic lectures tend to be teacher-led, thus engagement diminishes over time (Boeker et al., 2013). Whereas game-based learning promotes a bottom-up approach, which kept everyone active.

Most respondents explained that the game's concepts and examples were not new to them, but they admitted to having forgotten some of the principles and, therefore, considered the game as a refresher course. Furthermore, many appreciated the link between game concepts and the daily practice. As *Dignity* provided practical examples of correct and incorrect behaviours, these could be identified and corrected in the work environment. Nurse-midwives also acknowledged that certain behaviours had become the norm in their practice and were not questioned, for instance "slapping the woman during labour" or "shouting at the woman during second stage of labour for her to bear down." Labour ward culture contributed to maintaining these incorrect practices. Participants

Table 2
Pre- and post-test scores.

| Group | Questionnaire Components | Scores, mean (SD) | | Pre vs post-test scores | | |
|------------------------|--------------------------|-------------------|--------------|-------------------------|---------|-----------------------------|
| | | Pre-test | Post-test | Paired t | p-value | 95 % CI for mean difference |
| Overall N = 210 | Scenario | 14.29 (2.64) | 15.33 (2.13) | 6.09 | < 0.001 | 0.71–1.38 |
| | RMC principles | 3.20 (1.28) | 3.82 (1.41) | 5.24 | < 0.001 | 0.39–0.87 |
| | Attitudes | 8.43 (1.24) | 8.92 (1.17) | 5.32 | < 0.001 | 0.31–0.67 |
| | Total | 25.91 (3.73) | 28.07 (3.46) | 8.67 | < 0.001 | 1.67–2.65 |
| Nurse- midwives N = 97 | Scenario | 14.74 (2.46) | 15.63 (2.04) | 3.35 | 0.001 | 0.36–1.41 |
| | RMC principles | 3.36 (1.32) | 3.88 (1.20) | 3.24 | 0.002 | 0.20–0.83 |
| | Attitudes | 8.64 (1.24) | 9.07 (1.12) | 2.90 | 0.005 | 0.14–0.73 |
| | Total | 26.74 (3.77) | 28.58 (2.94) | 4.74 | < 0.001 | 1.07–2.60 |
| Students N = 113 | Scenario | 13.89 (2.74) | 15.07 (2.17) | 5.27 | < 0.001 | 0.74–1.62 |
| | RMC principles | 3.05 (1.24) | 3.78 (1.57) | 4.12 | < 0.001 | 0.38–1.08 |
| | Attitudes | 8.26 (1.22) | 8.79 (1.20) | 4.75 | < 0.001 | 0.31–0.75 |
| | Total | 25.20 (3.57) | 27.64 (3.81) | 7.59 | < 0.001 | 1.80–3.07 |
| Malawi | | | | | | |
| Group | | | | | | |
| Overall N = 92 | Questionnaire Components | Score, mean (SD) | | Pre vs post-test scores | | |
| | | Pre-test | Post-test | Paired t | p-value | 95 % CI for mean difference |
| Overall N = 92 | Scenario | 15.23 (2.46) | 16.02 (1.97) | 3.07 | 0.003 | 0.28–1.31 |
| | RMC principles | 3.42 (1.15) | 3.86 (1.40) | 2.37 | 0.020 | 0.07–0.80 |
| | Attitudes | 8.80 (0.95) | 9.18 (0.96) | 3.24 | 0.002 | 0.15–0.61 |
| | Total | 27.46 (3.08) | 29.07 (3.04) | 4.45 | < 0.001 | 0.89–2.33 |
| Nurse- midwives N = 39 | Scenario | 15.82 (1.54) | 15.79 (2.30) | -0.07 | 0.942 | -0.73–0.68 |
| | RMC principles | 3.46 (1.27) | 3.62 (1.33) | 0.57 | 0.570 | -0.39–0.70 |
| | Attitudes | 8.90 (0.88) | 8.87 (1.20) | -0.14 | 0.886 | -0.39–0.34 |
| | Total | 28.18 (2.56) | 28.28 (3.58) | 0.19 | 0.846 | -0.96–1.16 |
| Students N = 53 | Scenario | 14.79 (2.90) | 16.19 (1.70) | 4.01 | < 0.001 | 0.70–2.10 |
| | RMC principles | 3.40 (1.06) | 4.04 (1.43) | 2.58 | 0.013 | 0.14–1.14 |
| | Attitudes | 8.74 (1.00) | 9.42 (0.66) | 4.70 | < 0.001 | 0.39–0.97 |
| | Total | 26.92 (3.33) | 29.64 (2.45) | 6.18 | < 0.001 | 1.84–3.60 |
| Zambia | | | | | | |
| Group | | | | | | |
| Overall N = 118 | Questionnaire Components | Score, mean (SD) | | Pre vs post-test scores | | |
| | | Pre-test | Post-test | Paired t | p-value | 95 % CI for mean difference |
| Overall N = 118 | Scenario | 13.55 (2.56) | 14.79 (2.09) | 5.43 | < 0.001 | 0.79–1.69 |
| | RMC principles | 3.02 (1.35) | 3.80 (1.42) | 4.95 | < 0.001 | 0.47–1.09 |
| | Attitudes | 8.14 (1.37) | 8.71 (1.28) | 4.23 | < 0.001 | 0.30–0.83 |
| | Total | 24.71 (3.77) | 27.30 (3.58) | 7.65 | < 0.001 | 1.92–3.25 |
| Nurse- midwives N = 58 | Scenario | 14.02 (2.70) | 15.52 (1.87) | 4.22 | < 0.001 | 0.79–2.21 |
| | RMC principles | 3.29 (1.35) | 4.05 (1.08) | 3.97 | < 0.001 | 0.38–1.14 |
| | Attitudes | 8.47 (1.42) | 9.21 (1.06) | 3.51 | 0.001 | 0.32–1.16 |
| | Total | 23.68 (3.06) | 25.87 (3.94) | 6.11 | < 0.001 | 2.02–3.98 |
| Students N = 60 | Scenario | 13.10 (2.35) | 14.08 (2.07) | 3.43 | 0.001 | 0.41–1.56 |
| | RMC principles | 2.75 (1.31) | 3.55 (1.66) | 3.20 | 0.002 | 0.30–1.30 |
| | Attitudes | 7.83 (1.25) | 8.23 (1.29) | 2.40 | 0.020 | 0.07–0.73 |
| | Total | 23.68 (3.06) | 25.87 (3.94) | 4.71 | < 0.001 | 1.26–3.11 |

Max score possible = 35. Maximum component scores: scenario 18, RMC principles 7, attitudes 10.

Table 3
Participants' views of the *Dignity* game.

| | Nurse-midwives [Median (min-max)] | | Students [Median (min-max)] | | Total sample [Median (min-max)] | |
|-------------------------------------|-----------------------------------|---------------|-----------------------------|---------------|---------------------------------|----------------|
| | Malawi N = 32 | Zambia N = 58 | Malawi N = 54 | Zambia N = 60 | Malawi N = 86 | Zambia N = 118 |
| Country | | | | | | |
| Relevant to practice | 1 (1–4) | 1 (1–4) | 1 (1–5) | 1 (1–5) | 1 (1–5) | 1 (1–5) |
| Very relevant ... not very relevant | | | | | | |
| Ease of completing | 2 (1–8) | 2 (1–8) | 3 (1–9) | 2 (1–8) | 3 (1–9) | 2 (1–8) |
| Very easy... very difficult | | | | | | |
| Likeability | 1 (1–5) | 1 (1–6) | 1 (1–6) | 1 (1–8) | 1 (1–6) | 1 (1–8) |
| Loved it...hated it | | | | | | |
| Appearance | 1 (1–5) | 2 (1–6) | 1 (1–9) | 1.5 (1–8) | 1 (1–9) | 2 (1–8) |
| Acceptable...unacceptable | | | | | | |

1 = very positive – 10 = very negative.

perceived that they were able to challenge them through *Dignity's* explicit examples of abusive care. Other players explained how their learning progressed in areas such as a woman's right to choose her birth position and companion. It was interesting to note that a male member of staff became aware that a woman had a right to refuse his care during childbirth.

3.8. Theme 3 - Self-reflection for change

Several players described the game as a tool for self-assessment and identification of gaps in their own practice. Participants realised that

behaving disrespectfully towards women was morally wrong and could have a negative impact on their career. Moreover, it made them consider their reputation in the wider community, and how women they cared for may view them. If the care received was negative, discussion in the community could lead to rumours, with the midwife then being considered a 'bad midwife' and associated with 'poor practice'. Some participants were also very honest about their previous poor practices, vocalising areas that they considered were 'normal' and reflecting on the changes they would make to their behaviour because of their learning.

There was a collective awareness among nurse-midwife participants that communication was not always woman-centred. Asking for

informed consent before procedures (i.e. vaginal examination) and explaining the results of a test or the progress of labour was not routinely done. For a few nurse-midwives, *Dignity* helped to recognise discriminatory attitudes against women of low socio-economic status, education or for having HIV. This acknowledgement encouraged them to reconsider their attitudes and change their way of communicating and interacting with these women.

3.9. Theme 4 - Improved attitudes and care provision

Four to eight months post-gaming and despite the pandemic, it was gratifying to listen about nurse-midwives' efforts to change their communication skills, for instance by talking to women in a peaceful way. Improved communication was also mentioned by several participants when referring to providing a clear explanation to the woman about any procedures that would be carried out (i.e. vaginal examination, measuring blood pressure etc.). They also emphasised how asking for prospective informed consent was a significant change in their practice. Many also explained simple changes, such as greeting and smiling to the woman, talking in a respectful manner, as they realised that these behaviours would foster a positive relationship. Accommodating women's right to choose birth position was another area of improvement, implemented by some nurse-midwives.

3.10. Theme 5 - Barriers to implementing respectful care

Participants' best intentions to implement RMNC were sometimes hindered by limitations of the hospital environment. Commonalities between countries included lack of curtains/screens to ensure women's privacy during examination and labour, limited space for labour companions, and the unavailability of birthing beds accommodating women's choice of birth position. A recurrent complaint was about staff shortages in comparison to the number of women admitted in the labour ward. With a ratio of one nurse-midwife for four to five women, participants explained their inability to provide the best care to each of them. This shortage also affected the capacity to adequately monitor women and communicate the progress of labour.

Some participants experienced resistance to change from colleagues who did not play the game and suggested involving them in future learning to improve their behaviours.

4. Discussion

This study implemented an educational board game which was played by nurse-midwives and students. Assessment of its effectiveness in increasing understanding and perceived impact on practice of respectful maternal and newborn care (RMNC) principles in Malawi and Zambia was conducted. Post-test results indicate an increase in scores compared to pre-test scores for all participants from Zambia. Qualitative results suggest the game facilitated the adoption of a more woman-centred approach in practice.

Pre-test scores were good among all participants, with nurse-midwives scoring higher than students and no group scoring less than the mean score (18/35 points). Players had little knowledge of the Respectful Care Charter, but this improved post-test. This aligns with Jolly et al (Jolly et al., 2019). demonstrating midwives' limited awareness of some of the principles including freedom from harm and mistreatment and that familiarity with RMNC terms did not equate to practice. Similarly, principles of responsive and respectful care were poorly identified among Ethiopian midwives (Burrowes et al., 2017). Our interview findings suggest that the game has helped to distinguish subtle attitudes and to visualise how the principles can be turned into practice. In Malawi, students had lower scores in the pre-test which significantly increased in the post-test and were higher than the nurse-midwives. Students were likely to have a fresh knowledge of respectful care from their midwifery training, however, their limited

work experience, and use of teacher-led strategies in school, might have hindered acquisition of a working knowledge and its application. Obtaining higher post-game scores seems to confirm the game's effectiveness in increasing knowledge and application of RMNC.

In contrast, Malawian nurse-midwives failed to increase their post-test scores, with a slight decrease in "scenario" and "attitudes" sections. This could be explained through initial high scores (mean 28 vs 18) and the impact of the COVID pandemic. Staff relocation around the country prevented a third of nurse-midwives from completing the post-test, resulting in a smaller sample size than expected. The pandemic also increased pressure on maternity staff due to changes in staffing level and work patterns, use of personal protective equipment, testing, and exclusion of accompanying persons in hospital wards (Schmitt et al., 2021). These measures altered the interaction between nurse-midwives and women resulting in poor communication, limited support and lower standard of maternal care, increasing nurse-midwives' frustration and stress (Bradfield et al., 2022), potentially affecting the post-test scores.

The use of games to refresh knowledge has been reported by others (Webber et al., 2018). However, the use of the game for training seems to resonate with the limited availability of Continuous Professional Development (CPD) in several African countries (Baloyi and Jarvis, 2020). In these settings, formal CPD courses tend to focus on clinical skills and are linked to license renewal; in-service training for non-technical skills rely on donations thus tend to be limited (Baloyi and Jarvis, 2020). Educational games can fill this gap by supporting professional development. The advantage of being self-directed and portable makes them cost-effective for workplaces and accessible to all healthcare workers. Also, game content can be customised (Plass et al., 2015) according to the local needs and resources. Noteworthy is the fact that in one of the facilities in Malawi, senior midwives incorporated *Dignity* in their CPD to encourage use by all maternity staff.

Participants were enthusiastic about the game being a collaborative group experience and a self-directed way of sharing knowledge between colleagues. Group-based activities, including board games, enable people to interact with each other, and to share and discuss ideas and different perspectives. New and existing knowledge is challenged, constructed and refined according to mutual insight and contributions (Davidson and Major, 2014). Participants learn from exposing themselves and sharing, rather than being passive recipients of contents (Ambrose, 2010). This process enhances critical thinking, problem-solving and the ability to work with others. With fairly heterogeneous groups, diverse profiles, experiences and skills are combined during the activity, increasing individual and collective gains (Hammar Chiriach, 2014). Moreover, as seen in this experiment, group-based gaming can also lead to mixing of colleagues. This opens opportunities for using board games to mitigate professional power relationships, by encouraging teamwork and dialogue among individuals who are unlikely to relate as peers due to hierarchical structures.

An interesting outcome of playing *Dignity* has been participants' ability to self-reflect and acknowledging individual wrongdoing in their work. This may have occurred because participants read and discussed real examples of good and bad practice, and this helped them to be accountable for their actions. Reflective practice is an integral component of nursing and midwifery professions (Knight, 2015). Healthcare workers are encouraged to revisit their own assumptions and practice in order to learn and deliver good care. Reflective practice can lead to effective change when intrinsically driven and/or is linked to an incentivisation (Johnson and May, 2015). The fact that many participants who played *Dignity*, discussed their efforts of changing behaviour to be more respectful toward women, suggest the potential of board games to stimulate reflections and behaviour change in maternal care. Further research is warranted to explore the association between board-game playing and reflective practice as well as how games can improve accountability in healthcare settings. Observational studies including Knowledge, Attitudes and Practice (KAP) surveys could facilitate impact evaluation of this tool on actual nurse-midwifery

practice as well as impact on pregnancy outcomes, completing Level four of Kirkpatrick's model (Kirkpatrick and Kirkpatrick, 2006).

Efforts to improve provision of RMNC were undermined by individual and facility barriers, namely resistance to change, non-conducive maternity environments, limited resources and staff shortage. From an individual perspective, provision of respectful care involves how people behave and use interpersonal and communication skills with clients and patients. Changing behaviours and attitudes consolidated over time is likely to cause stress, uncertainty about their role and individual accountability, and can raise concern over one's self-esteem and ability to perform tasks (Curtis and White, 2002). Viable strategies exist to limit and address resistance, including initiating change at a slower pace to facilitate adaptation, providing information and education before the change occurs, and building trust between the changing agent and those involved in the change (Curtis and White, 2002). Appointing behaviour change models has shown to be effective in nursing and midwifery for driving innovation, promoting change and inclusivity of peers and managers (Drayton and Luck, 2021). Likewise, the introduction of RMNC champions in Zambia, providing regular refresher sessions and supporting new and existing staff may be an effective step towards addressing individual resistance.

Provision of relational care is not only a matter of appropriate behaviours and interpersonal skills; it also requires tackling systemic issues, such as challenging working conditions, power dynamics between colleagues and with women and constraints in human and physical resources (Freedman and Kruk, 2014). There is also a need to address RMNC as a complex adaptive system to unpack the interaction between individual and health systems components and how these can impact on maternity care (Asefa et al., 2020). With such a complex scenario, context-specific interventions addressing the eight domains of quality of care – effectiveness, safety, people-centred, timely, equitable, integrated and efficient – are recommended to effectively implement RMNC (World Health Organization, 2016).

5. Limitations

This study has some limitations. Quasi-experiments have limited internal validity as one cannot establish if the changes occurred were only due to the intervention or other factors (Handley et al., 2011). Adding a comparable control group and introducing randomisation may increase internal validity and should be considered (Handley et al., 2018).

Substantial changes in nurse-midwives interaction with women in study sites were mainly due to the COVID pandemic which hinders provision of more compassionate care due to the physical proximity between the woman and the health provider during labour and birth (Asefa et al., 2021). This should have not occurred, given that it is a woman's right to receive respectful and dignified maternity care, irrespective of external events, including a change of policies and practice due to a pandemic (Reingold et al., 2020).

Nurse-midwives' narratives of perceived improved behaviour towards women, seem to suggest the game's effectiveness in promoting respectful attitudes despite implementation of social distancing measures and mask wearing. In Malawi, the pandemic resulted in a smaller sample size of nurse-midwives completing the post-test. Consequently, difference between mean scores were not significant for this cohort. The apriori sample size accounts for 5 % of lost to follow up, which was exceeded in Malawi due to the COVID pandemic.

Strategies to improve retention rates should be considered in future studies, including offering monetary incentives and conducting follow-up by phone (Brueton et al., 2013). For pragmatic reasons, a control group of nurse-midwives and students who did not engage with *Dignity* was not included in this study but should be considered in future research.

6. Conclusions

Dignity constitutes a novel tool to enhance knowledge and understanding of respectful care principles and practice in facilities for its interactive and engaging approach. It also facilitates self-reflection and can stimulate potential changes in practice and behaviour. Further research should assess the game as part of package of interventions promoting RMNC to be introduced in maternity settings. In-service training to practice relational care should also be available to refresh RMNC knowledge and skills. Nursing and midwifery faculties may consider embedding this tool into their curriculum to promote experiential learning of respectful care.

Ethics approval and consent to participate

Ethical approval was gained from University of Manchester ethics committee (ref: 2019-7958-12195, 14/11/19), College of Medicine Research and Ethics Committee, Malawi (ref: P.09/19/2794, 22/11/19), and National Health Research Authority and Ethics and Science Converge Institutional Review Board (ERES Converge IRB), Zambia (ref: 2019-Sep-099, 04/12/19).

Funding

This research was funded by the National Institute for Health and Care Research (NIHR; 16/137/53), a major funder of global health research and training, using UK aid from the UK Government to support global health research. The views expressed in this publication are those of the author(s) and not necessarily those of the NIHR or the UK Department of Health and Social Care.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The authors would like to acknowledge Dr Gaynor Maclean for the novel idea of the *Dignity* Game. We also appreciate Dr Sabina Wakasiaka, Ms Chowa Tembo Kasengele and Ms Eveles Chimala for supporting the delivery of this study. We thank LAMRN members including Dr Elijah Kirip, Dr Idesi Chilinda and Dr Unice Goshomi for their time and input in refining the data collection tools; and the participants who freely gave up their time to share their views and experiences.

Contribution to authorship

VAD and TL designed the study, with input into protocol development from CB and AC. CP, IC, KL, KT recruited participants in their countries and facilitated gaming sessions. All authors contributed to specific country analysis (CB, VAD, TL, KT, KL, CP, IC) with VAD and CB synthesising the overall findings with statistical support from VT. All authors interpreted the data. VAD drafted the first version of the article. All authors (VAD, TL, CB, KT, KL, AC, IC, CP, VT) commented on drafts of the article and have read and approved the final version for publication.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.nepr.2022.103519](https://doi.org/10.1016/j.nepr.2022.103519).

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