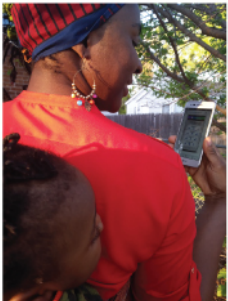


Special Theme



Women in eHealth



2018 - 2019

Journal of the International Society for Telemedicine and eHealth



Journal of the International Society for Telemedicine and eHealth

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JISfTeH is an official journal of the International Society for Telemedicine and eHealth whose stated mission is to "Facilitate the international dissemination of knowledge and experience in **Telemedicine** and **eHealth** and provide access to recognized experts in the field worldwide."

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Special Theme: Women in eHealth

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The abstracts of the articles are translated in French and available in the last section.

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Table of Contents

Guest Editorial

Women's Empowerment Through Digital Health p 3
Griffith Michele

Guest Editorial

Midwives and eHealth p 5
Cadee Franka, Ali Sagal

Securing the evidence and theory-based design of an online intervention designed to support midwives
in work-related psychological distress p 8
Sally C Pezaro

Childbearing Women's perception about the use of mHealth for maternal health information in
rural communities, ILE-IFE, Nigeria p 20
Titilayo Dorothy Odetola, Love Bukola Ayamolowo, Sunday Joseph Ayamolowo

Adopting Digital Technology in Midwifery practice – Experiences and perspectives from six projects in eight countries (2014 – 2016) p 26

Lilia Perez-Chavolla, Véronique Inès Thouvenot, Doina Schimpf, Amélie Moritz

Profile and motivation of women enrolled in the Brazilian Telemedicine and Telehealth Postgraduate Distance Education Programme p 34

Alexandra Monteiro, Barbara Grisolia, Juliana Magalhães Aguiar Cardoso, Munique Valério Santos Bara dos Santos

Social media as an opportunity for public health interventions : the #METOO movement as an exemplar p 38

Raquel Gómez Bravo, María Gómez Bravo, Charilaos Lygidakis, Claus Vögele

Feminisation of Dentistry in Brazil from the perspective of a Mooc-Type Distance Course – A short report p 45

Deise Garrido, Camila Maldonado Huanca, Ana Emilia Oliveira, Maria Celeste Morita, Ana Estela Haddad

Abstracts in French – Résumés des articles p 49

GUEST EDITORIAL

Women's Empowerment Through Digital Health

As 2020 approaches, it is timely for the Journal of the International Society for Telemedicine and eHealth (JISfTeH) to publish its third special issue on "Women in eHealth". As we near the 25th anniversary of the United Nations 4th World Conference on Women, we are reminded of the associated document, A Declaration and Platform for Action, detailing the strategy for gender equality and increased opportunities for women. The UN General Assembly, in September 2015, pledged to work towards universal Internet access by 2020. The 2030 Agenda for Sustainable Development Goals focuses on ending poverty and hunger, promoting gender equality and the empowerment of women and girls, protecting the planet and sustaining economic growth and work for all. Women and Information and Communication Technologies (ICT) are critical to the success of these initiatives and goals. The recent United Nations 2019 Inaugural report of EQUALS Research Group illuminated the complexity of the gender digital divide and its persistence irrespective of geographic location, income level, economic performance or level of ICT access level in a country. It highlighted the need to make significant- and urgent- investments in digital gender equality with a focus on identifying, addressing and eliminating barriers women face in ICT.

The World Health Organization (WHO) in its pursuit of universal health coverage, has highlighted the role of nurses and midwives in achieving this objective. Nurses and midwives constitute more than 50 percent of the health workforce in many countries and play a critical role in health promotion, disease prevention and delivery of primary and community care. The NursingNow! Campaign is an ongoing three-year strategy which began in 2018 and will culminate in 2020, designed to raise the status of nursing to improve health outcomes. WHO has designated 2020 the "Year of the nurse and midwife" in recognition and honor of the 200th birth anniversary of Florence Nightingale. The first State of World's Nursing Report and State of the World's Midwifery 2020 report are expected to be released for country level dissemination and policy action. Tapping into this workforce with the utilisation of technology has the potential to deliver a successful model for providing universal coverage.

The International Society for Telemedicine and eHealth (ISfTeH), as a global leader and partner in digital health, has made consistent efforts to promote and advocate for gender equity in eHealth. In 2013, the working group on Women (WoW) was founded to address gender inclusion and parity

in eHealth. It continues to be one of the most active and progressive groups, partnering with the Women Observatory for eHealth of the Millennia2025 Women and Innovation Foundation, an NGO acting under the patronage of the UNESCO and UN ECOSOC, with Klughammer GmbH, the German company developing telemedicine software and manufacturing hardware, and with local NGOs to advocate for women's issues, gender equality and leadership roles in the digital health space.

The continued gender equity and women's rights initiatives of global organisations, governments, campaigns and social movements and the inclusion of ICT are encouraging. Have we made progress? Yes. How much? Not enough. Change requires initiatives and goals backed by action on macro and micro levels.

In middle- and low-income countries, first and foremost, issues of ICT access must be the focus of decision makers, stakeholders, governments and NGOs. It is estimated that 390 million women are unconnected. With over 5 billion mobile subscribers worldwide, and mobile use as the primary way to access the internet, it has the ability to empower and transform lives through access to health services, education, job opportunities and information. Women in low- and middle-income countries are 10 percent less likely to own a mobile phone than men. Even when they own phones, they are less likely to utilise the Internet creating an even larger gap. Addressing key barriers of low digital literacy, cost, and safety and security concerns is a priority requiring customized solutions on a local level.

Despite ubiquitous access to the Internet in many countries with advanced economies, women are primarily end users; recipients with minimal participation as innovators and leaders in the development and conceptualisation of digital health solutions. In the last few years, we have seen the rise of Femtech, a term coined to describe software, products and services designed to address women's health. The focus has been narrowed with 60% of solutions addressing pregnancy, nursing, reproductive health and fertility. This limited scope ignores a significant percentage of women. Little attention is paid to gender related issues including chronic conditions and diseases that disproportionately affect women. The lack of representation in the conceptual and design phase is clear.

A global survey of chief information officers noted 9 percent of senior IT leadership roles were held by women in 2017, unchanged from 2016. In the US, often viewed as a

leader in gender equality, the percentage of women in digital health leadership is dismal. Only 10.2 percent of CEOs at digital health start-ups are women. Only 12.2 percent of digital health VC firms' partners are women. Female leadership is not only important from the standpoint of fairness. Studies have shown that companies with the most women on their management staff are more profitable compared to those with less women. These companies are also more innovative which is important in the rapidly evolving and disrupting world of digital health. We are encouraged by female entrepreneurs and CEOs in ICT who are paving the way for women leadership in the digitization of healthcare. Sheila Lirio Marcelo, founder and CEO of Care.com runs the world's biggest online care platform with more than 7 million clients worldwide. Dr Suzanne Saffie-Siebert of the United Kingdom and founder and CEO of SiSaf Ltd, is a pioneer in drug delivery and leader in the pharmaceutical industry. Judy Faulkner is founder and CEO of health record giant EPIC systems in the United States which has more than 250 million patient records.

We are encouraged by many women-led digital health start-ups that are disrupting the healthcare industry. Unima in Mexico offers a fast, low cost, diagnostic and disease surveillance tool for healthcare providers to diagnose at point of care. NanoX in Australia has revolutionized the delivery of radiation therapy. WaziVision in Uganda provides affordable eyeglasses recycled from plastic and Tonic app in Portugal improves medical doctor clinical efficiency.

Each article in this special edition is first authored by a woman. It highlights the many ways women are utilizing ICT to impact health and health outcomes. In this issue we see the power of social media as the #MeToo movement mobilized people internationally. The term, coined by American social activist Tarana Burke in 2006, became an effective rallying cry in 2017. As we continue to use ICT to raise awareness of women's issues, improve the lives of women thus their families and communities by empowering them with access to ICT, eliminate the gender digital divide and advocate for more leadership roles for women in digital health, I invite you to become a part of this. With awareness and understanding comes responsibility. Achieving gender equity is not a passive process. It requires action. It starts with you- right where you are.

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GUEST EDITORIAL

Midwives and eHealth

eHealth is a cost-effective and secure use of information communication technologies (ICT) in support of health and healthcare delivery.¹ Midwives have greatly benefited from eHealth, most notably from adopting electronic health records, allowing them to quickly access patient data and information and decreasing paperwork and administration. However, with the increasing uptake by pregnant women of mobile applications (apps) focusing on aspects of pregnancy and childbirth, there is a growing concern from midwives that their clients may not receive accurate information. Mobile apps can be useful when women and their families consult a healthcare professional before following the advice set out in the app.

Does technology help or hinder good care?

Technology has transformed society, the way we live and interact, and the impact on women's health and provision of maternal and new-born health services is evident. A healthcare provider interaction is now often preceded by individuals, including pregnant women, entering their symptoms online and using 'Dr. Search Engine' to provide them with a preliminary diagnosis.

Pregnant women can now track and receive information about their pregnancies without a face-to-face consultation with a midwife or other care provider. Similarly, to reports from the general public, pregnant women also report experiencing 'information overload' through use of mobile applications and the Internet, with the most popular pregnancy application being downloaded 25 million times globally. Information can be contradictory and confusing for some, while others find it helpful.

A 2018 study by Connor et al in the United States into the use of mobile health applications by pregnant women found that study participants used free apps because they were easy to use, appreciated their interactive features and found them to be a trustworthy and convenient ways to receive information.²

Medical devices

Electronic medical devices and tools are available to assist pregnant women and midwives.

The International Confederation of Midwives (ICM) is currently partnered with Laerdal Global Health to implement the 50,000 Happy Birthdays project. Through this project, ICM has been involved in supporting Maternity Foundation to integrate the Safe Delivery App into Emergency Obstetric and Newborn Care (EmONC) training for midwives. The application provides midwives with direct and instant access

to evidence-based and up-to-date EmONC guidelines. The application also leverages the growing ubiquity of mobile phones to provide life-saving information and guidance through easy-to-understand animated instruction videos, action cards and drug lists. It can serve as a training tool both in pre- and in-service training and equips midwives even in the most remote areas with a powerful on-the-job reference tool.³

Are at home diagnostic tools harmful to pregnant women?

Pregnant women, who tend to be young and generally well versed in using mobile apps, can use at home electronic medical devices and tools to measure their own blood sugar levels and blood pressure, without the presence of a midwife or other provider. This technology has increased women's ability to self-care which can be useful to monitor changes in health status during pregnancy.

A 2018 study conducted in Belgium by Bansal et al used wireless devices for remote blood pressure monitoring of women with gestational hypertension. Results showed that remotely monitored women had lower hospitalisation rates, increased diagnosis of hypertension, and less diagnosis of pre-eclampsia when compared to women receiving traditional care. There were increased rates of early labour and lower rates of labour inductions, new-born hospitalisation and NICU admission.⁴

A handheld foetal Doppler ultrasound is often used to listen to the foetal heart rate during pregnancy as one indicator of foetal wellbeing. However, without a trained midwife interpreting the results and providing the woman with guidance and information, unsupervised use may lead to misdiagnosis, anxiety and unnecessary intervention.⁴ Some devices designed for portable use at home can be used to transmit information to maternity providers. In each case they have been shown to have advantages and disadvantages. In many instances professional dilemmas arise for midwives because the information is inaccurate, or incomplete. As a trigger for face to face consultation such devices can be useful.

The lack of collaboration with the scientific community, midwives and other healthcare professionals in the development of eHealth technology is highlighted as a concern. Many of the most popular apps are also a platform to promote products and ideologies which may misinform and prevent women from making a truly informed choice.

The regulation of mobile app for pregnant women has not yet caught up to current scientific research – some mobile

phone apps have outdated information which could mislead users, if it is the only source of information.

It is recommended that a system be developed to certify or verify the quality of mHealth applications to ensure that information is based on latest research evidence.²

Technology increases universal health coverage

Universal Health Coverage is defined by the World Health Organisation as “ensuring that all people have access to needed *health* services of sufficient quality to be effective while also ensuring that the use of these services does not expose the user to financial hardship.”⁵ eHealth provides the opportunity to increase health coverage in geographically hard to reach areas.

Midwives and other providers in rural, remote or hard to reach areas can lack adequate support and guidance to improve quality of care. In a systematic review conducted to evaluate the effectiveness of mHealth interventions focused on healthcare workers in low and middle-income countries, almost 79% of participants in 19 studies used text messaging as the main intervention.⁶

Twinning between midwives, defined as a ‘*cross-cultural, reciprocal process where two groups of people work together to achieve joint goals*’ is aimed at transcultural learning and empowerment. Twinning is on the increase globally and is supported by an Application called ‘Twintown’.⁷ This App, available in French and English, gives practical information on how to initiate, support and evaluate twinning between midwives.^{8,9}

The usefulness of teleconsultation and online eLearning systems were discussed in a study conducted in 15 health facilities in rural Tanzania. The integration of mHealth into the healthcare system provided midwives and other care providers with new ways of learning and opportunities to apply knowledge, thereby enhancing clinical problem-solving and accountability resulting in improved coverage and quality of care.¹⁰

The ICM is involved in an American Academy of Pediatrics project in Zambia, where ECHO video conferencing technology is being used to create a community of practice to support training in EmONC. The Academy has created a central hub of specialists who have regular videoconferencing with rural and remote outlying health facility staff, to discuss clinical cases, efficacy of training and quality improvement.

Currently in remote rural facilities in Australia, telehealth has become an important tool to assist in the day to day care of pregnant women by providing them access to a midwife and a medical practitioner for routine and specialist consultations. This also is used to tap into expert assistance in emergencies where specialist care is not on site, but a specialist can advise on actions to stabilise a woman or her baby which could be life-saving.

The power of data collection

Access to results from evaluation of health data is crucial for midwives to improve quality of care of mothers and new-

borns. Many countries have moved from manual paper-based records to electronic methods of data collection, monitoring and evaluation.¹¹

The introduction of eHealth systems has increased opportunities for timely data collection and analysis, which offers midwives improved decision support on which to base changes in care provision.¹¹

Countless projects have started in the last few years to upskill midwives and other care providers in data collection. In rural Ghana, a mobile health application known as mClinic was designed to support midwives to capture data for managing the care of women, program monitoring and evaluation, decision making, and management. The project highlighted the need for continuous staff training and technology support in order to be effective.¹¹

The human touch and regulation for safer use

Using home-based eHealth solutions as an adjunct to consultations by a midwife or other care provider can be an effective way to save costs and deliver health services more widely. However, all eHealth applications and technologies need to be regulated and regularly updated with current evidence in collaboration with midwives and other care providers.

The fast-changing world of technology has made regulating eHealth products difficult for policymakers. However, high standards need to be maintained as the general public becomes more reliant on their information and support. eHealth can inform women and their families of their health rights and choices available. It can also free up midwives from administrative tasks to spend more quality time with women to support them to experience the transformative power of birth.

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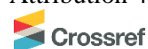
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SECURING THE EVIDENCE AND THEORY-BASED DESIGN OF AN ONLINE INTERVENTION DESIGNED TO SUPPORT MIDWIVES IN WORK-RELATED PSYCHOLOGICAL DISTRESS

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Abstract

The psychological wellbeing of midwives can be linked to the safety and quality of maternity care. As such, work-related psychological distress in midwifery populations must be addressed in order to meet the United Nation's Sustainable Development Goals for maternal health. Earlier research maps out a global vision, using telemedicine and e/mHealth for the design and development of an online intervention designed to support midwives in work-related psychological distress. This paper outlines how the evidence and theory-based design of such an intervention has been secured via a narrative review, a critical realist review, a 2-round Delphi study and a mixed-methods systematic review of the literature. Findings suggest that this online intervention should be designed to provide anonymity and confidentiality for midwives seeking support online. 24-hour mobile access, effective moderation, an online discussion forum, and additional legal, educational, and therapeutic components are also indicated for collation in a 'One stop shop' online. Additionally, a simple user assessment may be used to identify those people deemed to be at risk of causing harm. The comprehensive design for this particular intervention is outlined using a validated checklist and guide. This particular design has been informed by the pathways disclosure model and the revised transactional model of occupational stress and coping. This research has been guided by the Medical Research Council's framework for developing complex interventions. Future research in this field is also suggested. Should this intervention be developed and tested more widely, both midwives and maternity service users may experience safer, more productive and higher-quality maternity care.

Keywords: midwifery; complex interventions; mHealth; eHealth; work-related stress

Introduction

The healthcare sector has one of the highest estimated prevalence rates of work-related stress.¹ This is significant because there are serious consequences for the healthcare services, which are associated with poor health and wellbeing in healthcare staff. For example, staff sickness absence rates can cost an estimated £3.3million annually per healthcare organisation.² Additionally, when staff are absent, there is the added £3.3billion annual cost of agency staff.³

Moreover, there are serious consequences associated with work-related psychological distress for frontline healthcare staff, where over 30% of all sick leave can be caused by work-place stress.⁴ Significantly, where frontline healthcare staff are psychologically distressed, the quality of patient experiences and clinical outcomes are reduced, and standardised mortality and infection rates are higher.⁵⁻⁹ Furthermore, in recent years Litigation authorities have paid out over £1.1 billion following medical errors,¹⁰ which occur more frequently when healthcare staff experience work-related psychological distress.⁹ Therefore, work-related psychological distress in midwifery populations must be addressed in pursuit of meeting the United Nation's Sustainable Development Goals for maternal health.

A recent review commissioned by the government in the United Kingdom calls for the development of online wellbeing portals for staff, using e-health, telemedicine or information and communication technologies (ICT) for health.¹¹ Yet, whilst previous reviews have reported on a number of interventions designed to support healthcare workers experiencing work-related psychological distress, very few have been delivered online.¹²⁻¹⁶ Reviews also call for new evidence and research on standardised, theory driven, flexible and accessible interventions for healthcare professionals.¹²⁻¹⁶ This paper outlines the process of securing the evidence and theory-based design of an online intervention designed to support midwives in

work-related psychological distress. This process has been guided by the Medical Research Council's (MRC) guidelines for the development of complex interventions.¹⁷

Midwives have been chosen as an exemplary sample of healthcare professionals in this case, because a recent review of maternity services has highlighted how midwifery staff are more likely to report work-related stress than other staff groups.¹⁸ There are also other reasons why midwives are a particularly appropriate group to focus upon. As well as the problems associated with a lack of staffing resources, estimates suggest that enabling a midwife to return-to-practice can cost £2,000 per midwife, and training a new member of staff can cost around £79,000.¹⁹ Furthermore, recruitment costs to replace each staff member who leaves owing to work-related stress is estimated to be £4,500.²⁰ Therefore, where the midwifery workforce is adequately supported, healthcare services may also see significant cost savings.²¹ Whilst these figures are focused upon the English maternity services, the deployment of an online support intervention could reach the international midwifery community for the benefit of both the midwifery profession, and mothers and babies around the world.

One review reports how the global midwifery community can experience both occupational and organisational sources of work-related psychological distress.²² In a more recent study carried out by the Royal College of Midwives, 48% of midwives felt stressed every day, or most days, with half of respondents worried about making a mistake.²³ Additionally, nearly two-thirds (64%) also said they felt unwell because of work-related stress. Yet encouragingly, these levels of psychological distress were reduced when positive actions were taken. Therefore, should theory driven, and evidence-based support interventions be developed and tested for midwives, several encouraging outcomes for maternity services could be realised. Additionally, both human and financial cost savings for global maternity services could be realised via better retention, recruitment and sickness absence rates, and fewer medical errors.

The purpose of this paper is to outline how the evidence and theory-based design of an online intervention designed to support midwives in work-related psychological distress has been secured via a series of research processes. This paper also summarises the content and design of this intervention to demonstrate how each component has been

considered in response to the evidence and theory presented.

Methods

This research sits within the first stage of the MRC's framework for developing complex interventions.¹⁷ As such, several studies have been undertaken to identify existing evidence, identify appropriate theory and model the processes and outcomes of this intervention in order to inform its evidence and theory-based design. The complete cycle of the MRC's framework is detailed in figure 1.

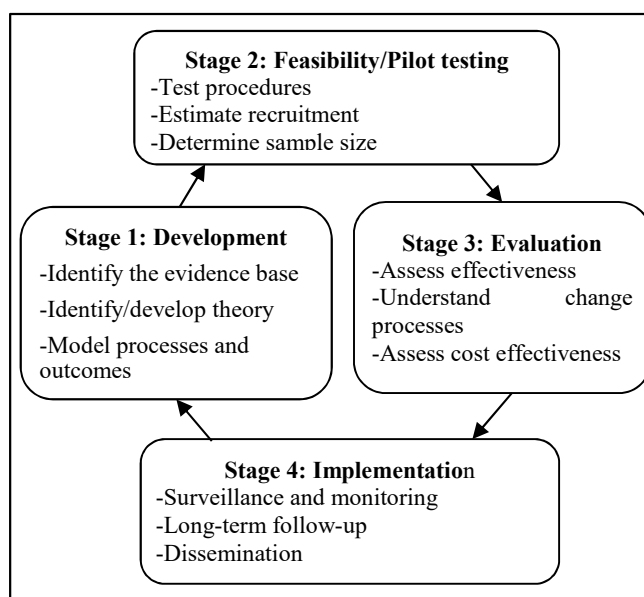


Figure 1. MRC framework for developing complex interventions.

The first part of this work involved the identification of preliminary evidence for the design of an online intervention designed to support midwives in work-related psychological distress. Here, the literature was reviewed and published narratively in order to gain a broader perspective with regard to the contemporary aetiology, experiences, symptomology and epidemiology of midwives in psychological distress.²² Fourteen separate broad search strategies retrieved 264 studies after 98 duplicates were removed, leaving 166 papers to review. Final papers selected for inclusion were limited to cohort studies, systematic reviews, meta-analyses, and randomised controlled trials.

Subsequently, in order to explore the ethical considerations in offering midwives the provision of anonymous and confidential online support, a critical

realist review of the literature was conducted and published.²⁴ Here, an iterative search strategy was used to select nine papers for review. Papers were examined for ideas in relation to the ethical dimensions of online interventions to support midwives in work-related psychological distress. These ethical dimensions were associated with the provision of confidentiality, anonymity and the result of these two primary dimensions, amnesty. The results of both this study and the preceding narrative review led the process of conducting a further brief review of the literature, which identified the relevant theories associated with the design of this intervention. Then, elements of all of the studies included in this work were informed by a theory of occupational stress and coping.

Next, 185 international experts were invited to participate in a 2-round Delphi study, designed to achieve expert consensus for priorities in the development of an online intervention to support midwives in work-related psychological distress. This study has been published elsewhere.²⁵ Overall, 39 questions were posed to eligible participants over 2 rounds. Consensus of opinion was defined as a minimum of 60% of panellists responding within two adjacent points on the 7-point rating scale. This scale was anchored at “Not a priority” and “Essential priority”. Statements that did not achieve consensus in Round 1 were returned to participants in Round 2. Following each round, panellists were also invited to reflect upon an overall report, detailing all participant responses. Open text responses were coded and then assigned to emergent themes in a succession of refinements. Quantitative results were presented via tabulated statistics. The full protocol for this study has been published elsewhere.²⁶

In order to establish what type of support was already available to and effective for midwives in work-related psychological distress, a mixed-methods systematic review was subsequently conducted. Here, six databases were used to conduct six detailed searches. Terms relating to the identification of the midwifery profession, terms available which broadly related to any of the outcomes that were considered to be generally associated with ‘work-related psychological distress’ and terms relating to work, employment, occupation and professional health were used in conjunction with terms associated with the management of general wellbeing, interventions, treatments, therapies and coping behaviours.

To be eligible for inclusion, studies had to identify at least one intervention and report on at least one outcome measure. Following a process of review, six contemporary studies were selected for inclusion. The quality of studies was appraised using a scoring system designed for appraising mixed-methods research, and concomitantly appraising qualitative, quantitative and mixed-methods primary studies in mixed reviews. Bias was assessed using an assessment of methodological rigor tool. Overall, this study took a segregated systematic mixed-methods review approach.²⁷ The methods used for this study have been published elsewhere.²⁸

Results

The first narrative review conducted yielded 30 international studies relating to the phenomenon of midwives and student midwives in work-related psychological distress. Findings revealed that midwives experience both organisational and occupational sources of work-related stress. This stress is met with inadequate support provision and is not conducive to high-quality maternity care. Furthermore, midwives in some cases were either unable to identify ill health in themselves or were reluctant to seek help due to shame and stigma. The full results of this research have been published elsewhere.²²

The critical realist review that explored the ethical considerations in relation to offering midwives the provision of confidentiality and anonymity online reported that whilst online interventions can support the development of insight, help seeking and open discussion, ethical dilemmas remain where users cannot be identified. Additionally, this review demonstrated that internet support groups can become morally persuasive in nature. As anonymity and confidentiality were found to be both effective and therapeutic features of online interventions when used in collaboration with effective online moderation, this review advocated for their use in help seeking midwifery populations. This critical realist review has been published elsewhere.²⁴

As a result of these initial findings, two theories were then identified as appropriate for guiding the design of an online intervention intended to support midwives in work-related psychological distress. Firstly, the pathways disclosure model was identified as one way of demonstrating how an online user seeking help both anonymously and confidentially can progress

to a full face-to-face disclosure of events for the purpose of help seeking. This model is outlined in figure 2.



Figure 2. The Pathways Disclosure Model.

Secondly, a theoretical, process-orientated model which combines both Lazarus' transactional theory of stress and coping²⁹ and Karasek's JDC theory³⁰ was chosen to provide the most appropriate underpinning for the design and development of this online intervention. Displayed in figure 3, this model is outlined as the revised transactional model of occupational stress and coping presented by Goh and colleagues.^{31,32}

There is currently a known gap between stress-specific theories and their application in the design and development of online interventions designed to support those in work-related psychological distress.³³ As such, the application of these two theories may further strengthen the design of the online intervention presented here. Yet it is also important to apply evidence from other interventions designed to support midwives and evidence from experts in the field.

Results from the mixed-methods systematic review conducted revealed that mindfulness interventions, work-based resilience workshops partnered with a mentoring programme and the provision of clinical supervision provide a variety of both personal and professional positive outcomes and experiences for midwives. However, some participants were unable to participate in the interventions as provided for practical reasons. None of these interventions were delivered online. In this context, only mindfulness-based interventions were considered to be wholly transferable to being delivered online anonymously and confidentially. As such, the design of a comprehensive online intervention of this type can be considered to be entirely novel. Moreover, the studies identified within this review were not considered to be of high-quality. Therefore, new opportunities are now presented for the design of new online interventions of this type to be rigorously developed and tested in line with the MRC framework for developing complex interventions.¹⁷ This mixed-methods systematic review has been published elsewhere.²⁸

When experts were invited to identify the priorities

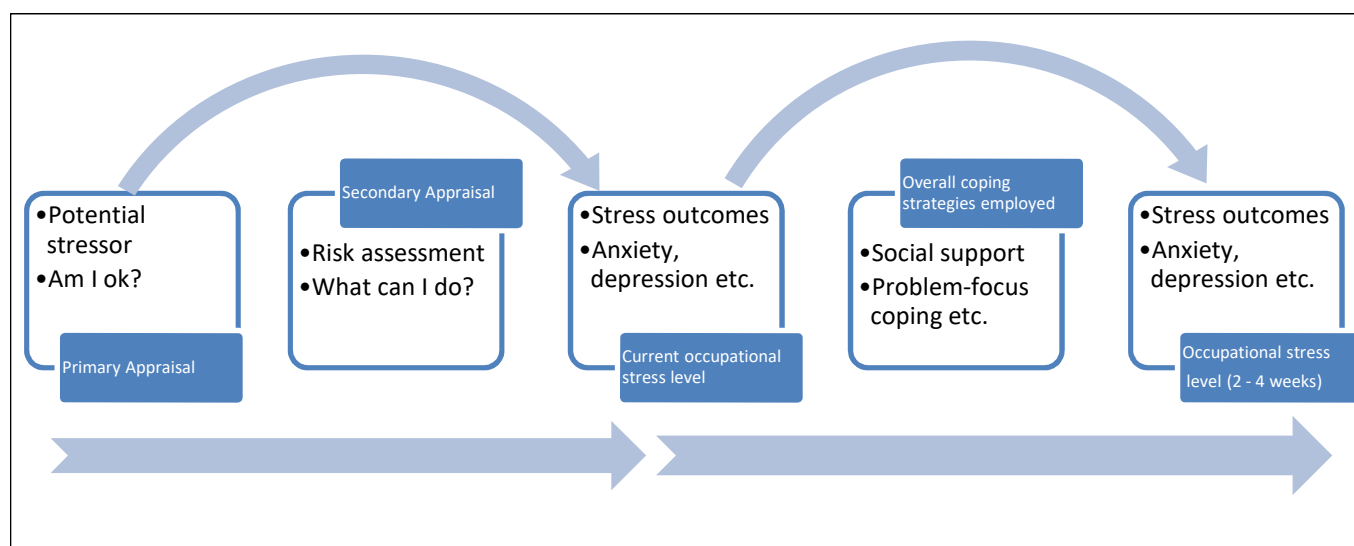


Figure 3. The Revised Transactional Model of Occupational Stress and Coping.

in designing and developing an online intervention to support midwives in work-related psychological distress, participants agreed that future designs should make confidentiality and anonymity a high priority, along with 24-hour mobile access, effective moderation, an online discussion forum, and additional legal, educational, and therapeutic components. Experts also decided that midwives should be offered a simple user assessment to identify those people deemed to be at risk of either causing harm to others or experiencing harm themselves. It was agreed that those at risk should then be directed to access external support. With this evidence secured, findings were integrated into the development process to fully optimise intervention design. This Delphi study has been published elsewhere.²⁵

Along with the findings presented within these individual studies, the design of this online intervention to support midwives has also been inspired by the components of other online interventions, also rooted within transactional models of stress.^{34–39} In order to comprehensively describe the overall proposed design for this online intervention to support midwives, the Template for Intervention Description and Replication (TIDieR) checklist and guide has been employed.⁴⁰ This checklist and guide is presented in Appendix A. It has been completed alongside the supporting evidence for each component. This table also reports how each item relates to relevant theory.

Discussion

The primary narrative review of the literature outlined the sources, nature and prevalence of work-related psychological distress in global midwifery populations. Findings showed that midwives from around the world can experience both organisational and occupational sources of distress.

The critical review of the literature identified and explored the ethical considerations in relation to providing midwives in distress with confidential and anonymous online support. This review concluded that the principles of confidentiality, anonymity and amnesty should be upheld in the pursuit of the greatest benefit for the greatest number of people.

The systematic mixed-methods review presented here found that no evidence-based online interventions for midwives in work-related psychological distress are currently available. Some participants within studies

were also unable to fully engage with targeted interventions face-to-face. However, all of the studies collated within this review reported both personal and professional benefits for midwives who engaged in mindfulness sessions, work-based resilience workshops partnered with a mentoring programme and clinical supervision.

The 2-round Delphi study presented here concluded that the design of an online intervention to support midwives in work-related psychological distress should most highly prioritise confidentiality and anonymity. These particular findings reflect the conclusions of other research, where doctors also report that their engagement depended upon the promise and certainty of confidentiality.⁵⁴ In this case, participants purported that there would be a need for effective moderation within an online discussion forum, along with 24-hour mobile access. In order to direct those in need towards appropriate support, these experts also indicated that midwives should also be offered a simple user assessment to identify risks of either causing harm to others or experiencing harm themselves. Practically, the inclusion of legal, educational, and therapeutic components was suggested to finalise the design of this intervention.

Overall, the findings from a narrative review,²² a critical realist review,²⁴ a mixed-methods systematic review²⁸ and a 2-round Delphi study²⁵ have given evidence for the design and development of an online intervention to support midwives as outlined in Appendix A. The design of this online intervention has also been informed by the revised transactional model of stress and coping and the pathways disclosure model.^{31,32} In applying process orientated theories as a ‘theoretical lens’, a better understanding of stress has been able to guide this research throughout.⁵⁵

Whilst this research is situated within the first stage of the MRC framework for developing complex interventions,⁵⁶ there are still some unanswered research questions to address prior to embarking upon feasibility testing. For example, some experts remained wary of affording confidentiality and anonymity to midwives online, given that this would essentially afford them amnesty should they disclose episodes of impairment such as misconduct.²⁵ Therefore, further patient and public involvement (PPI) activities may be needed to decide what level of confidentiality and/or anonymity may be acceptable in this context. It will also be important to ascertain how midwives may optimise

the development of this intervention for use. As such, further development studies which include the potential end users of this intervention may also be required.

Since the research presented within this paper has been completed, an evaluation of a web-based holistic stress reduction pilot program among nurse-midwives has been published.⁵⁷ This intervention used yoga, meditation, and Mindfulness Based Stress Reduction (MBSR) techniques on an alternating basis, over a 4-week period to help reduce perceived barriers to self-care activities. It was rooted within Watson's theory of human caring.⁵⁸ Results from this study showed a potential for an improvement in stress levels and coping abilities after participation. However, this online intervention was not designed to achieve the goals of the elements essential to the intervention designed here.

This paper has outlined a research process which has led to the evidence and theory-based design of an online intervention designed to support midwives in work-related psychological distress. This paper also maps the content and design of this online intervention to the evidence and theories presented. Recent reviews call for the development of evidence based online support for staff at work,¹¹ support for the health and wellbeing of frontline healthcare staff⁵⁹ and more flexible types of evidence and theory based interventions.⁶⁰ As such, there is an opportunity to build upon this early foundation of evidence and progress to stage 2 of the MRC framework for developing and evaluating complex interventions.⁵⁶ Such future research would include a development and feasibility study for the purpose of designing an adequately powered controlled trial with a randomised cluster and internal pilot design. Should the use of this online intervention prove effective, then international midwifery communities may experience a psychologically safer professional journey, and maternity service users may experience safer, more productive and higher-quality maternity care in line with the United Nation's Sustainable Development Goals for maternal health.

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Appendix A. Design of a proposed online intervention to support midwives in work-related psychological distress.

TIDieR item	Item	Evidence	Related theory base
Why: Goal of the elements essential to the intervention	For Midwives: -Identify work-related psychological distress -Manage work-related psychological distress -Reduce work-related psychological distress -Cope following episodes of work-related psychological distress	-Delphi study findings -Critical realist review findings -Systematic review results -Narrative review findings	The revised transactional model of occupational stress and coping: -Appraisal -Outcomes -Coping
What: Materials (Components)	The inclusion of Web-based videos, multimedia resources, and tutorials which explore topics around psychological distress	-Delphi study results	The revised transactional model of occupational stress and coping: -Appraisal -Outcomes -Coping
	The inclusion of informative multimedia designed to assist midwives to recognise the signs and symptoms of psychological distress	-Delphi study results	The revised transactional model of occupational stress and coping: -Appraisal -Outcomes -Coping
	The inclusion of multimedia resources which disseminate self-care techniques	-Delphi study results	The revised transactional model of occupational stress and coping: -Appraisal -Outcomes -Coping
	The inclusion of multimedia resources which disseminate relaxation techniques	-Delphi study results	The revised transactional model of occupational stress and coping: -Appraisal -Outcomes -Coping
	The inclusion of mindfulness tutorials and multimedia resources	-Delphi study results - Systematic review results _41-43	The revised transactional model of occupational stress and coping: -Appraisal -Outcomes -Coping
	The inclusion of Cognitive Behavioural Therapy (CBT) tutorials and multimedia resources	-Delphi study results	The revised transactional model of occupational stress and coping: -Appraisal -Outcomes -Coping
	The inclusion of information designed to inform midwives where	-Delphi study results -Critical realist review results	The revised transactional model of occupational stress and coping: -Appraisal

	they can access alternative help and support		-Coping
	The inclusion of information designed to inform midwives as to where they can access legal help and advice	-Delphi study results	The revised transactional model of occupational stress and coping: -Appraisal -Coping
	Web-based peer-to-peer discussion chat room	-Delphi study results ⁴⁴⁻⁴⁶ -Critical realist review results	The revised transactional model of occupational stress and coping: -Appraisal -Outcomes -Coping
	Self-management exercises and decision aids	⁴⁷ -Narrative review findings	-Components which have been incorporated in other online interventions, rooted within the transactional models of stress ³⁴⁻³⁹ The revised transactional model of occupational stress and coping: -Appraisal -Coping -Outcomes
	Online self-monitoring wellbeing and gratitude diaries	⁴⁸ -Narrative review findings	
	Audio-narrated videos and graphics designed to promote goal setting, problem-solving and effective time management	⁴⁹ -Narrative review findings	
	Positive psychology exercises	⁵⁰ -Narrative review findings	
What: Procedures (delivery, features and functionalities)	Confidentiality for all users	-Delphi study results -Critical realist review results	The revised transactional model of occupational stress and coping: -Appraisal -Coping
	Anonymity for all users	-Delphi study results -Critical realist review results	The revised transactional model of occupational stress and coping: -Appraisal -Coping
	Prompting platform users automatically to seek help, by signposting them to appropriate support	-Delphi study results -Critical realist review results	The revised transactional model of occupational stress and coping: -Appraisal -Coping
	Mobile device compatibility	-Delphi study results	The revised transactional model of occupational stress and coping: -Coping
	Effective moderation	-Delphi study results -Critical realist review results	The revised transactional model of occupational stress and coping: -Appraisal -Coping
	24/7 availability	-Delphi study results -Critical realist review results	The revised transactional model of occupational stress and coping: -Coping

		-Systematic review results	
	The implementation of an initial simple user assessment using a psychological distress scale to prompt the user to access the most suitable support available	-Delphi study results -Critical realist review results	The revised transactional model of occupational stress and coping: -Appraisal -Coping -Outcomes
	The follow up and identification of those at risk	-Delphi study results -Critical realist review results	The revised transactional model of occupational stress and coping: -Appraisal -Coping -Outcomes
How	Online delivery	-Narrative review findings -Delphi study results -Critical realist review results -Systematic review results	The revised transactional model of occupational stress and coping: -Coping
Tailoring	Individual-focused	-Narrative review findings -Systematic review results - 41–43,51–53	Individual-focused online interventions, rooted within the transactional models of stress ^{34–37,39} The revised transactional model of occupational stress and coping: -Coping -Appraisal -Outcomes
	A ‘One stop shop’	-Delphi study results	The revised transactional model of occupational stress and coping: -Coping -Appraisal -Outcomes

CHILDBEARING WOMEN'S PERCEPTION ABOUT THE USE OF mHEALTH FOR MATERNAL HEALTH INFORMATION IN RURAL COMMUNITIES, ILE-IFE, NIGERIA

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Abstract

Background: Poor access and utilisation of maternal health services among rural women is a major contributor to the high maternal mortality in Nigeria. Inadequate healthcare facilities and personnel in the rural communities are some of the major factors militating against women's access and use of maternal health services. Harnessing mobile health (mHealth) in supporting health services delivery to widely-dispersed women will improve access to reproductive healthcare and reduce maternal mortality. This study aimed at assessing women's perception about the use of mHealth for maternal health information in rural communities. **Methods:** This was a descriptive community-based cross-sectional study that involved 403 women of childbearing age (15 to 49 y) who gave birth within the five years prior to the study. Data were collected over two weeks using structured questionnaires. **Results:** The majority of the women possessed mobile phones, 91%, but only 48% currently used them for maternal health information and 87.3% had a positive perception about use of mHealth for maternal health information. Women who had positive perception had higher odds of accessing a health institution for delivery compared to those who had poor perception (OR=1.72, SE=0.6, CI=0.92-3.22). **Conclusion:** Women had positive perceptions about use of mHealth but current use of mobile phone for maternal health information was poor. Innovative methods like mHealth to strengthen maternal health services delivery for the hard to reach populations are urgently needed to support Nigeria efforts towards desirable global maternal and child health targets against year 2030.

Keywords: mHealth; rural communities; childbirth; maternal mortality; maternal health information; eHealth readiness

Introduction

Globally, approximately 287,000 women die every year and 830 every day due to complications related to pregnancy and childbirth.^{1,2} Ninety-nine percent of maternal deaths occur in developing countries, more than half occurring in sub-Saharan Africa and more frequently in women living in rural areas and among poorer communities.¹ The risk of a woman in a developing country dying from a maternal-related cause during her lifetime is about 33 times higher compared to a woman living in a developed country.² According to a UNICEF report, Nigeria loses a great number of children's lives during pregnancy and childbirth and the country loses about 2,300 under-five year olds every single day.³ Nigeria is regarded as the second largest contributor to the under-five and maternal mortality rate in the world.

The high maternal mortality in south western region of Nigeria has been reported to be predominantly among the rural women due to poor utilisation of maternal health services.⁴ More than 70 per cent of the Nigerian population live in rural areas with little or no proper healthcare services and facilities, and even where they exist, striking poverty hinders most of them from accessing the services.⁵ Compared to urban women, who are wealthier, more educated and use antenatal care services optimally,⁶ rural women are less privileged and of low socio-economic status.⁷ They tend to engage in different agricultural activities which involve strenuous physical labour with different unpleasant effects on their health especially during pregnancy. The women are sometime already malnourished and suffering from iron deficiency anemia,⁷ increasing their need for skilled birth attendants for optimal maternal and neonatal health.

There has been inadequate and ineffective provision of concise information to women especially during pregnancy and childbirth because of the serious dearth of facilities and skilled workers like nurses and

midwives at the rural level in Nigeria.⁸ This predisposes women to the risk of not accessing maternal healthcare services or adopting healthy perinatal behaviours. Various maternal and child health initiatives in Nigeria focus on promoting health, preventing disease, and reducing maternal and child mortality, but these are not reaching rural areas. The use of mobile devices is growing in the health sector, providing time-saving and cost effective approaches to delivery of quality healthcare information about antenatal care, skilled birth attendant and postnatal care services at the primary care level in Nigeria. mHealth interventions for healthcare consumers have been designed to increase healthy behaviour such as adequate uptake of available maternal health services. For women in the rural areas, these will potentially provide the opportunity to obtain, process, and understand the basic health information and services required for appropriate health decisions,⁹ and facilitate universal access to reproductive healthcare services via mHealth. This will invariably reduce maternal, neonatal and child morbidity and mortality in Nigeria.

There is limited information about perception of using mHealth for disseminating maternal health information among the women in rural communities in Osun state and Ile-Ife, the study site. For mHealth initiatives to accelerate maternal health goals, requires, in part, that women in the rural communities have good knowledge of mHealth technology and a positive attitude and good perception of mHealth services. The literature and anecdotal observation have shown that most people in the rural areas possess or have access to mobile phones.^{10,11} It is imperative to explore how the mobile phone can be used to bridge the gap between skilled healthcare workers and clients and facilitate meeting the Sustainable Developmental Goal in 2030 and the global aspiration of optimal reproductive health.

The aim of this study was to provide an understanding of the perception of childbearing women in rural communities of the use of mobile health for maternal health information.

Methods

A descriptive cross-sectional, community-based study was conducted among women of reproductive age (15-49 y) in selected rural communities in Ile-Ife, South western Nigeria. The population is made up of people of different cultural and socioeconomic background.

The indigenes are Yoruba speaking and depend largely on agriculture.

A pre-tested, structured, researcher-administered questionnaire was used to obtain the relevant data. Multistage sampling procedures were used to select eligible respondents. A rural community was defined as having a population less than 30,000 and lacking facilities like electricity, potable water, telephone services, banks, and good intra-city roads network. Five wards were randomly selected from the 11 wards in the Ife East Local Government by balloting while one ward with a rural community was purposively selected from Ife Central Local Government. Two rural communities were randomly selected from each of the selected wards; a snowball sampling method was used to select eligible and consenting respondents in the selected communities. Advocacy visits were made to the village head of the selected rural communities in order to establish rapport. The inclusion criteria were all women within the age range of 15-49y who had had a child born in the 5 years prior the survey. Informed consent was obtained from the women, with the nature and the purpose of the study was explained to them by the researcher and the trained research assistants. Ethical approval for this study was obtained from the Health Research Ethics Committee, Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Nigeria (HREC NO: IPHOAU/12/873).

The questionnaires elicited information about the demographic and the obstetric characteristics of the respondents. A three-point Likert scale was used to measure respondents' perception which was scored as: Agreed (3), Undecided (2), Disagreed (1). The minimum and maximum scores were 9 and 27 respectively. Scores on items 6, 7, and 9 were reversed to reduce response bias. Respondents with scores less than 18 were classified as having a negative perception, while those with scores greater than 18 as having a positive perception.

The Chi-square test was used for the bivariate analysis and multivariate analysis was performed using linear logistic regression model. Alpha was set at 5%.

Results

The demographics of the 403 respondents are shown in Table 1. The mean age of respondents was 32 ± 7.4 y, 34% were traders, 28% farmers and only 8.2% were unemployed. A third (34%) of the respondents had no

schooling. Yoruba (82.1%) was the predominant ethnic group among the respondents representing and the majority (88%) of the respondents were presently married. (Table 1)

Table 1. Socio-demographic characteristics (N=403).

Marital status	n (%)	Ethnicity	n (%)
Single	33 (8.2)	Yoruba	331 (82.1)
Married	355 (88.0)	Igbo	32 (7.9)
Divorced	11 (2.7)	Hausa	23 (5.7)
Widowed	4 (1.0)	Others	17 (4.2)
Occupation		Highest educational level	
Artisan	56 (13.9)	No schooling	138 (34.2)
Civil servant	62 (15.4)	Primary	85 (21.1)
Farming	114 (28.3)	Secondary	134 (33.3)
Trading	138 (34.2)	Tertiary	46 (11.4)
Unemployed	33 (8.2)		

Mean parity was 3 ± 1.5 babies and the 73.5% of the respondents obtained antenatal care (ANC) during their last pregnancy in a hospital but 41.7% and 42.4% of respondents planned delivering their last and next baby respectively in a hospital. While 91% of the women had a mobile phone only 48% of respondents used mobile phone for maternity care information with their healthcare providers. (Table 2)

Overall, the mean perception of the women about using mobile phone for delivery of maternal healthcare information was 22 ± 3.1 and 352 (87.3%) had a positive perception.

The majority of respondents had positive perception about use of mobile health technology for maternal health information, 87.3%. (Table 3) Most respondents believed that use of phone is good for sharing maternal and child health information among women in the rural community, 83%, but respondents were less positive

Table 2. Obstetric characteristics (N=403).

Parity	n(%)
1-2	180 (44.7)
3-4	176 (43.7)
5 & above	47 (11.7)
Last pregnancy attendance of ANC	
Yes	347 (86.1)
No	56 (13.9)
Place for ANC attendance	
Hospital	296 (73.4)
Outside Hospital	107 (26.6)
Planned place for delivering my last baby	
Hospital	168 (41.7)
Outside Hospital	235 (58.3)
Place I will deliver my next baby	
Hospital	171 (42.4)
Outside Hospital	232 (57.6)
Use of phone with maternity care provider	
Yes	192 (47.6)
No	211 (52.4)

about the ability of mobile technology reaching rural women 40.7% with a further 6% undecided. Similarly about half of the women were concerned about privacy and confidentiality of pregnancy related information. Age and parity did not influence perception about mHealth, but education status did with positive perception increasing with educational status ($p=0.015$).

Logistic regression showed that respondents who had positive perception about use of mobile health technology for maternal health information had higher odds of accessing a health institution for delivery compared to those who had poor perception about use of mobile health technology (OR=1.72, SE=0.6, CI=0.92-3.22).

Table 3. Perception about use of mobile phone for maternal health information (N=403).

Question	Agreed n (%)	Undecided n (%)	Disagreed n (%)
Mobile phone is good for sharing maternal and child health information between women and community health providers	336 (83.4)	3 (0.7)	64 (15.9)
Mobile phone provides free and easy communication linkage with the health workers	328 (81.4)	6 (1.5)	69 (17.1)
mHealth can influence women's plan for preferred place of birth	347 (86.1)	9 (2.2)	47 (11.7)
mHealth can improve the use of health facility by women	292 (72.5)	48 (11.9)	63 (15.6)
Using mobile phone for healthcare is not cost effective	130 (32.2)	35 (8.7)	238 (59.1)
Too much use of phone can cause cancer	40 (9.9)	103 (25.6)	260 (64.5)
Mobile technology cannot reach women in the communities	164 (40.7)	24 (6.0)	215 (53.3)
It becomes easier by mobile phone to contact other pregnant women to share healthcare information with them	369 (91.6)	4 (1.0)	30 (7.4)
No privacy and confidentiality of information about childbirth via mobile phone	177 (43.9)	29 (7.2)	197 (48.9)

Discussion

This study showed that the general perception of the benefits of mHealth for providing information was high. There was no difference in perception based on age or parity and the least educated were least positive. However, 40% of respondents did not think mobile health would reach rural women and 44% expressed concerns about confidentiality and privacy while using the mobile phones for sharing and gaining information. Respondents who had a positive perception about use of mobile phone for disseminating maternal health information had higher odds of accessing a health institution for delivery compared to those who had poor perception about use of mobile health technology.

There is limited literature on the perception of women about the use of mHealth for maternal health information in rural communities. In a study in urban-rural communities in Argentina, 91% of women were interested in receiving educational information via text based messages and 87% showed interest in receiving phone calls with similar prenatal and postnatal educational information.⁹ More people in our study had no schooling 34% than in the Argentinian study 17.1%⁹ and lack of education influenced perception.

The majority of the respondents in the rural communities had mobile phones. This supports the findings from previous studies where the majority of people in the rural areas had mobile phones,^{10,11} suggesting that communication among women and their healthcare providers becomes easier in the hard to reach communities. However, 40% of respondents did not think that mobile phone based interventions would reach rural women, this is probably due to poor network coverage in the rural places, a reflection of reality. This has serious implications for future mHealth implementations.

Mobile phone applications (Apps) for maternal health care services are being pilot-tested in Nigeria^{8,12} but were not available in the region at the time of the study and people were not aware of it or its benefits. Most women had a positive perception about using their mobile phones for receiving maternity care information from their healthcare providers and even though there was no service in place nearly half already used their phones to communicate with their maternal health providers. Whether this was to gain information is not known. Assessing the eHealth readiness of the rural women prior to implementation will help identify potential obstacles and facilitate successful adoption of

the services. A study in Oyo State showed that the majority of the health workers had poor knowledge of mHealth and that very few of them were aware of mobile health being pilot-tested in Nigeria.⁸ From this perspective, understanding women's perceptions about the strategy will help in designing and implementing of mHealth interventions in communities. Those implementing mHealth solutions should facilitate training and retraining of health workforce and enlighten the populace on the benefits of mHealth.

Literature has shown that access to and acceptance of information and support during pregnancy and childbirth by family have important implications for maternal choices of type of maternity care, place of delivery and effective use of available reproductive health services.¹³ In the current study 73% of women agreed that health facility use will be improved if women use mobile phones for maternal health information and getting information from health workers during pregnancy and childbirth through mobile phone can influence women's choice for place of birth.

Since the majority of the women owned mobile phones and had a positive perception about using mHealth for maternal health information, childbearing women in Nigeria could benefit from an mHealth programme if implemented. These findings are similar to the study in Argentina.⁹ The current study showed that the majority of women agreed that the mobile phone would provide a free and easy communication linkage with the health workers. This corroborates the study in Ondo- a South-western part of Nigeria where 59% found the easy and free communication linkage with the health workers the most important benefit of the mobile phone.¹³

Care must be taken when interpreting these positive perceptions. The high ownership of mobile phones and generally positive perception of mHealth use in pregnancy does not necessarily equate to subsequent use of mHealth, as 41% of respondents felt that mHealth technology will not reach rural women, 44% had concerns about confidentiality and privacy, and 32% felt that using mobile phones was not cost effective. In a study at semi-urban hospital in Nigeria, doctors with a high level of knowledge, attitude and willingness to adopt mHealth, considered concerns about confidentiality and privacy as a major constraint to mHealth.¹⁴ This is not surprising with the high level of insecurity and data theft across all application platforms. More research into measures to effectively

minimise risk to privacy and security in mHealth is needed.

Despite the greater number of women attending hospital for ANC during their last pregnancy, in this study, 58% of respondents did not deliver their child in a hospital nor plan to deliver their next child in a hospital. This is higher than reported in a study in Ebonyi State where 25% of women had non-institutional delivery but lower than in Kaduna where 76% of women had home delivery despite 98.2% of them attending antenatal care.¹⁵ An Ethiopian study reported a notable number of pregnant women, especially among slum residents, still choosing to deliver at home despite the adequate ANC attendance during pregnancy.¹⁶ In the current study women who had good perception about use of mobile health technology for maternal health information had higher odds of accessing a health institution for delivery.

The use of cell phones in Kenya and Nigeria improved facility utilisation and maternal health and generally improved healthcare services for pregnant women.^{13,14,17} mHealth implementers in Nigeria need to devise strategies of leveraging mHealth for maternal and new-born care, particularly in this under-resourced health ecosystem. There should be sensitisation, awareness and training of the community health providers and the populace about the uses of mHealth technology particularly in the rural communities. This will encourage the development of innovative mHealth solutions and harmonise the regulation between the delivery of traditional healthcare services and mobile health services.

Conclusion

The majority of women possessed a mobile phone and rural women had a positive perception about using mobile health technology to obtain maternal health information from their healthcare providers. Even in the absence of an mHealth maternal health service, almost half the women were using their phones to communicate with their maternal health providers. Innovative methods of strengthening the healthcare system for maternal and newborn health as well as new approaches like mHealth technology which is capable of reaching the hard-to-reach populations are urgently needed to support Nigeria efforts towards desirable global maternal and child health targets set against the year 2030. The perception that mHealth will not reach

rural women and concerns over confidentiality and privacy need further investigation.

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ADOPTING DIGITAL TECHNOLOGY IN MIDWIFERY PRACTICE – EXPERIENCES AND PERSPECTIVES FROM SIX PROJECTS IN EIGHT COUNTRIES (2014 – 2016)

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Abstract

This paper describes the cases of six midwifery projects of the Women Observatory for eHealth at the Millennia2025 Women and Innovation Foundation, to support the adoption of information and communication technologies (ICTs) in midwifery practice in eight countries from 2014 to 2016. The WeObservatory is a digital inclusion incubator aimed at reducing maternal and neonatal mortality in countries with limited resources by strengthening midwifery practice through the access to ICTs and eHealth applications. This paper describes how the collaboration with the WeObservatory supported these projects in the development and adoption of digital solutions for midwifery practice. It examines responses from the project leaders to an online survey conducted by the WeObservatory in January of 2018. Their responses provide insights on opportunities and challenges faced by these projects that can inform future midwifery eHealth projects. Building capacity among midwives for the adoption of digital competencies will help improve the quality of healthcare provided to mothers and their newborn babies in low-income countries.

Keywords: eHealth; midwifery; maternal health; ICT applications; mobile health

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Introduction

In 2013, the Millennia2025 Women and Innovation Foundation, in partnership with the Sanofi Espoir Foundation, launched the Women Observatory for eHealth (WeObservatory), with the collaboration of Connecting Nurses, Connecting Midwives, and UniversalDoctor.¹ The two foundations agreed to collaborate to promote bottom-up innovation in midwifery projects.

From 2014 to 2016, two midwifery projects were selected each year to join the WeObservatory. (Table 1) The selected projects —submitted by midwives from Africa, Asia and America through the Care Challenge participatory platform— were recognised with Midwives for Life Awards of the Sanofi Espoir Foundation.² The collaboration with the WeObservatory gave these projects: (1) access to technical and financial support to develop new digital solutions for midwives; (2) the opportunity to expand their international visibility and recognition through scientific publications, participation in and presentations at international conferences, and (3) a gateway to network with other midwives and health professionals, sharing resources and expertise to improve maternal and neonatal health in their communities.

Methods

In January 2018, the WeObservatory invited the leaders of the five implemented midwifery projects to participate in an open-ended survey covering: key achievements, challenges and expansion plans for their projects, the contribution of the WeObservatory to their projects, and the impact of adopting ICT for midwifery practice.

Survey answers were grouped around four emerging themes: 1) supporting capacity building for midwives; 2) facilitating midwifery practice and improving maternal health through the adoption of mHealth applications; 3) increasing recognition of the role of midwives in healthcare; and 4) enabling collaborations. The article describes each of the projects as they relate to these themes. It then discusses challenges faced by the projects and how the collaboration with the WeObservatory helped overcome them.

Results

Supporting Capacity Building for Midwives – Projects from Mexico, Netherlands-Morocco, and Ethiopia

ICTs are considered powerful tools for strengthening health systems; they facilitate capacity building among health

Table 1. eHealth projects participating in the WeObservatory (2014 – 2016), in chronological order.

Organisation	Project	Target Population	Digital Solutions Delivered under the WeObservatory
Centre for the Adolescents of San Miguel de Allende (CASA), Mexico	ICTs for Midwives	Professional midwives, nurses and physicians providing maternal and neonatal care to expectant women in rural areas of Mexico.	<ul style="list-style-type: none"> • Online training course on the use of ICT applications for midwifery, composed of eight 20-minute modules. • eBook in Spanish expanding the content of the original online course's ICT modules. • 100 USB keys with a copy of the eBook for offline access.
Association PanMilar, Switzerland	Multilingual Interpretation for Pregnant Migrant Women	Pregnant migrant women living in the Swiss Canton of Vaud.	<ul style="list-style-type: none"> • New PanMilar website. • New animation video explaining to pregnant migrant women where and how to find prenatal courses, midwives and interpreters in more than 50 languages. • <i>UniversalWomen Speaker</i> and <i>Refugee Speaker</i> – Mobile and web tools providing medical translations during pregnancy, childbirth and overall maternal health issues to facilitate multilingual communication between women and healthcare professionals not sharing a common language.
Royal Dutch Organization of Midwives (KNOV), Netherlands	Twin2Win, (t2t)	Midwives of Netherlands with midwives in Sierra Leone and Morocco.	<ul style="list-style-type: none"> • <i>Twin2Win</i> - A mobile application to foster the twinning methodology, collaboration and experience-sharing among midwives from different cultures.
Japanese Midwives Association (JMA), Japan, and Mongolian Midwives Association (MMA), Mongolia	Midwives Reducing Obesity in Mongolia	Midwives and expectant mothers in Mongolia.	<ul style="list-style-type: none"> • <i>Happy Baby, Happy Mom</i> - A mobile application to promote the reduction of obesity among pregnant women. Japanese midwives twinned with Mongolian midwives to share experiences and address problems of maternal and neonatal mortality caused by obesity among pregnant women in Mongolia.
Photographers Miriam Ackroyd, Australia and Doina Schimpf, Moldova	Portrait of a Midwife	Midwives in Australia, Bangladesh and Moldova.	<ul style="list-style-type: none"> • 139 photo portraits illustrating the daily work and lives of midwives and young students attending pregnant mothers in Asia and Europe.
Hospital of Gondar, Gondar, Ethiopia	Training Midwives on Emergency Obstetrics	Midwives in Gondar, Ethiopia.	<ul style="list-style-type: none"> • This project completed the preparation phase after one year of work. 20 midwives, 4 trainers and learning materials were ready for the implementation phase. The implementation was not operational due to communication and financial limitations.

workers in rural and low-income environments and promote equal access to care.³⁻⁶ Three of the six WeObservatory projects focused on building capacity among midwives: *ICTs for Midwives - Centre for the Adolescents of San Miguel de Allende (CASA), Mexico*

In 2014, CASA developed the eLearning programme, *ICTs for Midwives*, with the support of an interdisciplinary international team convened by the WeObservatory. The blended learning programme promotes digital competency

among CASA's midwifery students by introducing them to the use of an eLearning platform, highlighting electronic resources to support evidence-based practice, and familiarising them with the use of eHealth and mHealth applications and telemedicine for maternal and neonatal health.

The course was launched as a pilot programme in Spanish in 2014,⁷ and uploaded into CASA's eLearning platform⁸ and the WeObservatory Academy a year later, after obtaining

feedback from pilot programme students. To open access to the course's ICT-related content beyond CASA's platform, the WeObservatory published in 2016 the eBook *Aplicaciones Digitales para la Salud Materna e Infantil*, providing CASA a hundred USB keys with copies of the eBook so that students can access the material offline. (Figure 1)

Twin2Twin (t2t) – Royal Dutch Organisation of Midwives (KNOV), Netherlands

With technical support and eHealth expertise from the WeObservatory, Twin2Twin developed the mobile application *Twin2win*, which facilitates interactions and the exchange of experiences between “twinning” midwives. Twinning was originally developed by the International Confederation of Midwives (ICM) as a method to promote cooperation between two midwifery associations through the exchange of best practices. According to ICM, by building skills and relationships, twinning improves organisational effectiveness and enables networking and solidarity.⁹ Twin2Twin adapted the twinning methodology to interpersonal relationships,¹⁰ providing in the *Twin2win* mobile application a platform for midwives in different countries to build sustainable relationships and promote cross-cultural collaboration to achieve joint goals. Building on this international collaboration, the application's content and design were enriched by twinning experiences with midwives in the Netherlands, Sierra Leone and Morocco. Available in English and French, *Twin2win* includes a library on the Twinning method, and sections for project teams and twins. (Figure 2)

Training Midwives on Obstetrical Emergencies – Hospital of Gondar, Ethiopia

This project did not reach the implementation phase, but it aimed at improving the technical skills of midwives working in peripheral health centres around Gondar, Ethiopia. With financial support from the WeObservatory and the Nursing Education Partnership Initiative (NEPI) of Columbia Uni-

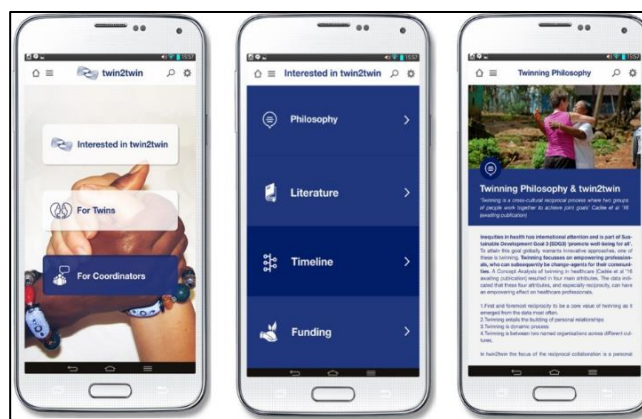


Figure 2. Twin2Win mobile application (Source: <http://www.m2025-weobservatory.org/twin2twin.html>).

versity, and in collaboration with the Department of Midwifery of the University of Gondar, twenty midwives would receive an intensive 18 days live-training on Basic Essential Obstetric and Newborn Care (BeMONC), a national training manual developed by the Ethiopian Ministry of Health in 2013. The ICT component of this project was limited to publishing a digital version of the manual, which would be made available online for ease of access.

In the survey, participants emphasised the importance of developing digital skills among midwives. The use of an eLearning platform like CASA's enabled individualised learning and interdisciplinary exchanges between midwives, nurses, and doctors. CASA's eLearning platform has proven an effective tool for midwives to “learn in a non-threatening manner about evidence-based medicine and the benefits of the midwifery model of care”. Similarly, the Twin2win application is being used “as the basic knowledge for midwives to start a twinning project”.

The respondents highlighted the effectiveness of



Figure 1. ICT and Midwifery Online Courses offered in CASA's Virtual Portal and eBook on Digital Applications for Maternal and Infant Health (Source: <http://casa.org.mx/campus-virtual/>).

integrating eLearning into midwifery and medical school curricula to improve digital competency, facilitate professional development, and build confidence among midwives to defend their profession and care for their patients. They noted that mobile applications made information easily accessible to midwives, particularly to those from the digital generation.

Improving Midwives' Interaction with Expectant Mothers – Projects from Switzerland and Mongolia-Japan

Communication and cultural competence are essential skills that impact the quality of service midwives and other healthcare workers provide to expectant mothers. Two WeObservatory projects focused on developing digital tools that facilitate sharing prenatal information with expectant mothers from different cultural backgrounds, making cultural competence indispensable.

Multilingual Interpretation for Pregnant Migrant Women – Association PanMilar, Switzerland

Midwives in Association PanMilar provide pregnancy advice and perinatal preparation classes in native languages to pregnant migrant women living in the canton of Vaud, Switzerland, who do not speak French and lack family support. Experienced intercultural translators help midwives engage moms-to-be in conversation about perinatal topics and conduct practical exercises that take into consideration their migratory, linguistic and cultural background. Thanks to the interpreters, moms-to-be can share in their native languages birth-giving traditions from their home countries and/or their personal experiences giving birth, while learning what to expect as a mother living in Switzerland.¹¹

To improve the women's access to prenatal services, PanMilar designed paper brochures in 25 languages with the support of the Public Health Department of Vaud. Yet,

patients preferred accessing health information digitally. Responding to this feedback, PanMilar, in collaboration with the WeObservatory, produced a short video to substitute the brochures, and in 2016, launched a new website that provides information in 39 languages on services and activities available to pregnant women. (Figure 3)

Since 2016, 190 women have registered for the courses using this website and, according to the project leaders, the website has become an essential informational tool for both migrant women and midwives. As of March of 2018, the website had registered more than 2,900 visits from 42 countries via computers (63%), smartphones (31%) and tablets (5%). In partnership with UniversalDoctor, the WeObservatory also developed two mobile applications, *UniversalWomen Speaker* and *Refugee Speaker*, available for mobiles, tablets and computers, to allow doctors and midwives to communicate with their patients in more than 17 languages, using written translations and audio in native languages. (Figure 4)

Midwives Reducing Obesity in Mongolia – JMA and MMA, Japan and Mongolia

This twinning project between the Japanese Midwives Association (JMA) and the Mongolian Midwives Association (MMA) uses mobile phones to inform women in Mongolia of the increased health risks associated with obesity during pregnancy. With the support of the WeObservatory and Universal Doctor, the project developed and launched, in 2016, the mobile application *Happy Baby, Happy Mom*, so that more women across the country could have access to this information. (Figure 5)

The application uses attractive visuals, graphics, tables and animation to share information adapted from pamphlets originally designed by the midwives and distributed to



Figure 3. PanMilar's new website showing the multiple languages courses are available in. (Source: <https://www.panmilar.ch>).

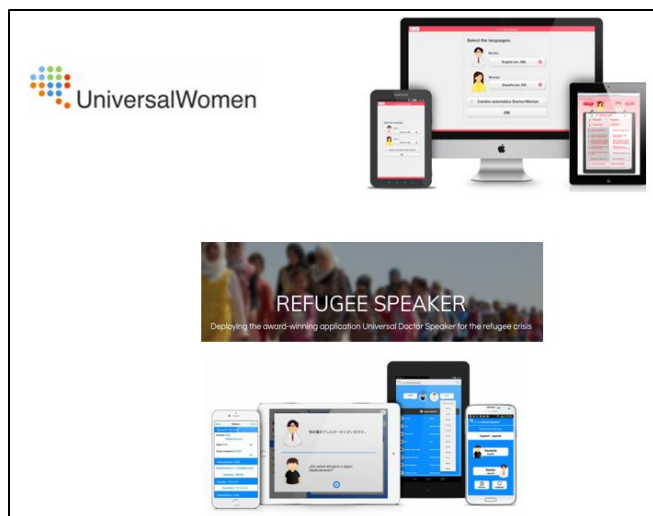


Figure 4. Universal Women Speaker and Refugee Speaker (Source: <http://www.u-women.com/> - <http://www.refugeespeaker.org/>).

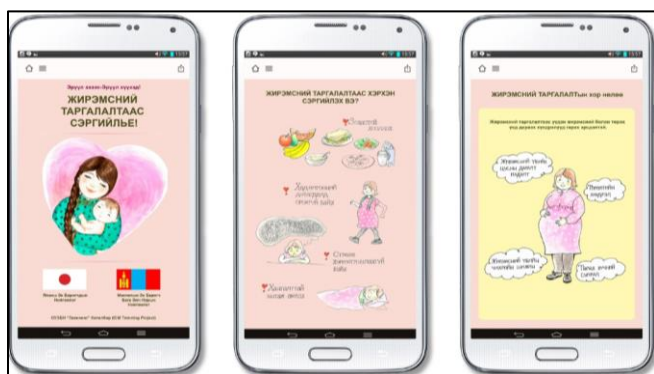


Figure 5. Happy Baby, Happy Mom application in Mongolian and English (Source: <http://www.m2025-weobservatory.org/midwives-reducing-obesity-in-mongolia.html>)

82,000 women in Mongolia. JMA and MMA report that the application is already being used in Ulaanbaatar and in rural areas of the country. At the request of midwives in Mongolia, JMA funded the development of the app version for Apple phones, and to reach an international audience, the app was made available in English in 2018.

The development of the mobile application enabled the project's participants to learn its usefulness for improving "the effectiveness of the midwife-patient dynamic". Midwives and mothers in Mongolia appreciate having access to an application in their own language that is easy to use and understand, and that teaches them how to calculate their body mass index.

Raising Awareness of the Importance of Midwifery Practice– Project from Australia

Portrait of a Midwife, Australia

This project documents midwifery practice through photo portraits to raise awareness of the importance of and need for

skilled midwives. The portraits capture field experiences and challenges of midwifery activities in diverse communities for their dissemination in international networks and media. In 2016, photographers Miriam Ackroyd and Doina Schimpf took 139 photos illustrating the daily work and lives of midwives and young students attending expectant women at midwifery schools and hospitals in Bangladesh and Moldova.¹² (Figure 6) A set of photos was exhibited at the 31 ICM Triennial Congress, at the stand of the Sanofi Espoir Foundation.¹³

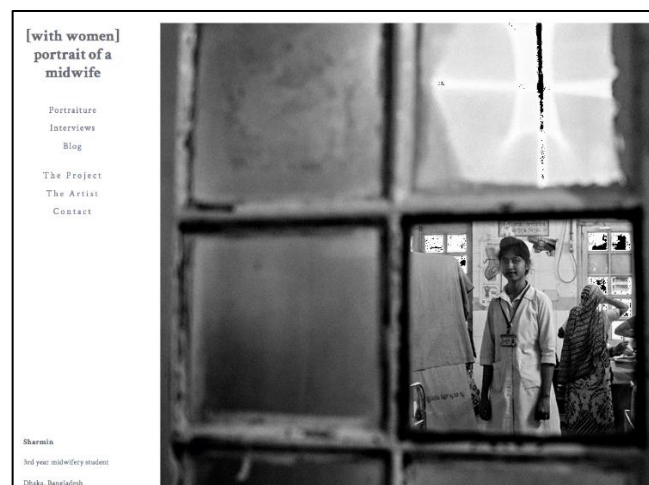


Figure 6. Portrait of a Midwife website (Source: <http://www.portraitofamidwife.com/>).

The project leader noted that "It does not matter what language is being spoken, the heart and actions of midwives are the same: To be with women". For her, photography is an instrument for education and change; "images can inform, teach, inspire, agitate and shake us to the core", she noted.

In countries where professional midwifery is not well known, it becomes essential to raise awareness of their work and their capacity. CASA's project leader noted that fostering digital literacy among midwives has facilitated the recognition of their vital role by other healthcare professionals. Since the launch of its eLearning course, CASA has worked with universities and state health offices to promote the integration of midwifery formation in university curricula and of ICT training in professional midwifery schools. Thanks to these efforts, the Secretariat of Health in the state of Veracruz made CASA's midwifery online course mandatory for all healthcare providers working in the state's 500 public hospitals and clinics. The online training has also been approved for its distribution through the World Health Organization's Pan-American Health virtual campus, managed by the Mexican Secretariat of Health.

Enabling Collaborations

Enabling collaborations is a key purpose of the WeObservatory. Their participation in the WeObservatory helped projects increase their international exposure, allowing midwives to share their knowledge, expertise and

practices in international and scientific arenas, and strengthening connections between them. The projects were presented in 50 international conferences in English, Spanish or French, and information on their projects was shared through brochures, bookmarks, flyers, as well as social media. The WeObservatory Blog includes 109 news items covering topics in 35 categories, six interviews of women influencers in eHealth, 10 videos and 210 photos relating to the projects.¹⁴ The visibility of WeObservatory Projects is listed in Table 2.

Table 2. Expanded Visibility of WeObservatory Projects

Project	International Visibility
ICTs for Midwives	CASA, the eBook, and the online training were represented at six conferences, including MEDETEL in 2015 ¹⁵ and 2016. ¹⁶
PanMilar	The project was presented at local events or meetings in Geneva and Lausanne, including the Giving Women Annual Conference in Geneva in 2016. ¹⁶
Twin2Win	Demo version (v1.0) of the mobile app was presented at the Global Forum, in Eindhoven in 2016, during the WeObservatory's session on "Digital Communities", and at the ICM Congress 2017. ¹⁷
Mongolia	The mobile application was presented at international conferences in 2017. ¹⁷
Portraits of Midwives	A selection of photos and quotes was showcased at events and conferences, including the ICM Congress in Toronto in 2017. ¹⁷

Discussion

Innovation, capacity building, communication and collaboration are core principles of the WeObservatory that informed its collaboration with the selected projects. In terms of innovation, the collaboration of the WeObservatory contributed to the development of four mobile applications – *Twin2Win*, *UniversalWomen Speaker*, *Refugee Speaker*, and *Happy Mom*, *Happy Baby*– adapted to local languages and needs. These applications facilitated collaboration and information sharing between midwives in different countries and with patients from different backgrounds.

This collaboration also improved access to education and eLearning opportunities for midwives and pregnant women through the development of online training platforms, publications, videos, portraits and websites, raising awareness of the importance of midwifery practice for maternal health.

Like many other eHealth projects being implemented worldwide, the WeObservatory projects had to overcome infrastructural and technical barriers, scarce financial and

human resources, and cultural differences. Access to CASA's eLearning platform has been affected by differences in the quality and speed of broadband services available throughout the country. To partially overcome this barrier, the WeObservatory distributed USB keys with some of the course material. Similarly, PanMilar midwives faced the challenge of having to learn about digital communication to develop their informational video. To this end, the WeObservatory provided technical advice on visuals and animations to make the video easily understandable.

The Twin2Win project faced cultural differences in terms of work, life and communication styles of twinned midwives in Netherlands and Morocco. The mobile application financed by the WeObservatory aimed at improving communication. Similarly, the *Happy Baby*, *Happy Mom* app had to overcome the technical challenge of integrating the specificities of Mongolian language into the app, as well as cultural differences. The project manager noted that the professionalism and enthusiasm of the midwives made up for these obstacles. Developing the mobile app brought Mongolian and Japanese midwives participating in the twinning project closer together and strengthened their cooperation.

Finally, the Ethiopian project highlights the importance of institutional support in successful project implementation. One year into the collaboration, the course schedule had been developed, the training budget was approved, and the midwives and trainers had been selected. But NEPI had not officially confirmed to the Department of Midwifery of the University of Gondar its participation in and financial support of the programme, creating uncertainty regarding the feasibility, quality and impact of the training. These factors, combined with changes in key project personnel in Ethiopia, prompted the WeObservatory and the Sanofi Espoir Foundation to cancel their participation.

In sum, the support of the WeObservatory, with both financial and technical expertise, contributed for the projects to advance their goals. Project leaders highlighted the added value that adopting mobile applications and digital technologies provided to their projects by allowing midwives to access information and keep in touch with their patients and with each other. The ubiquity of mobile phones makes this an easily accessible and adequate medium to engage and educate young midwives.

Driven by the results achieved by the WeObservatory projects so far, the Millennia2025 Women and Innovation Foundation and Sanofi Espoir Foundation extended their collaboration for the 2017 – 2018 period to continue facilitating better pregnancy monitoring and quality of healthcare through innovative projects for midwives and women. To promote visibility, the projects were encouraged to participate in the call for submissions from the Journal of the International Society for Telemedicine and eHealth for the third Special Issue on Women in eHealth in 2019.

Conclusion

The 2014-2016 WeObservatory projects discussed here are selected eHealth and mHealth case studies that, despite their early stages of implementation, are already making an impact on midwifery practice and the health of the women and babies they serve. Five of the six selected projects expanded their reach and visibility thanks to their collaboration with the Millennia2025 Foundation and Connecting Midwives partnership. The WeObservatory provided midwives a platform to help the projects grow and supported the recognition of midwives' daily work at international levels.

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PROFILE AND MOTIVATION OF WOMEN ENROLLED IN THE BRAZILIAN TELEMEDICINE AND TELEHEALTH POSTGRADUATE DISTANCE EDUCATION PROGRAMME

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Abstract

Purpose: Women's participation in Telehealth is increasing around the world and they should be prepared to work in this new job market. The aim of this study was to evaluate the profile and motivation of women enrolled in the Brazilian Postgraduate Programme on Telemedicine and Telehealth. **Methods:** A cross-sectional study was conducted from May to July 2018 of all women enrolled in the postgraduate programme using an anonymous online Google form. It consisted of a multiple choice form regarding: age, number of children, profession, date of graduation, current occupation, current number of jobs, workload, postgraduate programmes completed, duration of Telehealth experience and motivation to enrol on the Programme. Data collected were exported to an Excel® sheet, summarised and analysed. **Results:** Of 44 women, 36 completed the survey. Mean age and time passed since graduation were respectively 43.5 ± 13.5 years and 18 ± 17 years for student and 53 ± 13.5 years and 31.5 ± 8.5 for professors; 25 women have at least one child, work more than 30 hours weekly and 10 of them work in two jobs. Health professionals and health occupations were predominant in both groups. Most students had little or no experience in Telehealth. The decreasing order of frequency motivation was professional refinement (63.8%), job opportunity (55.5%), financial gain (52.7%) and innovation (38.8%). **Conclusion:** Regardless of age, children, workload and professional qualification, the major women's motivation for enrolling in the Telehealth Postgraduate Programme is to professional refinement in this field.

Keywords: telemedicine; telehealth; women; working; distance education; Brazil

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Introduction

According to WHO, Telehealth is defined as the use of telecommunication technologies to deliver health care outside of traditional health-care facilities.¹ One of its applications is the use of information and technologies to provide remote support to deliver health services at distance for the purpose of diagnosis, second opinion, disease monitoring or treatment - telemedicine. Another is related to distance education of healthcare professionals – tele-education.¹ Telehealth is expanding globally and people require, training and certification in this area.² There are an increasing number of programmes including undergraduate,³ postgraduate⁴ and distance learning courses for upgrading professional qualifications.⁵⁻⁷

This new field of virtual health work requires training and improvement in multidisciplinary areas to work as a part an interdisciplinary virtual team. It requires knowledge in subjects such as bioethics, Internet ethics, telehealth legislation, electronic registration systems, innovation in

computer science, privacy, data protection and cyber security, among others. In this sense, educational programmes focused on Telehealth, can contribute by providing professional refinement and knowledge enhancement.³

There are over 200 institutions around the world that offer eHealth continuing education and academic postgraduate education programmes, most of which are in Europe and North America.² In Brazil, CAPES (Coordination of Professional Development on Higher Education) is a foundation of the Ministry of Education whose central purpose to approve, coordinate and measure the quality of masters and doctoral courses of Brazilian postgraduate programmes. Currently, CAPES supports a 6,303 postgraduate programmes, 3,398 Academic Masters, 2,202 PhDs and 703 Professional Masters.⁸ In the specific fields of Telemedicine and Telehealth, there are a few Master's or PhD programmes in the world and in Brazil there is only one - the Brazilian Postgraduate Programme on Telemedicine and Telehealth, a masters level course at distance supported

by the Telehealth Centre of Rio de Janeiro State University.⁹

The number of women in the labour market is increasing and one of their interests is in the field of the informatics and telehealth.¹⁰ As an example, in a Latin American Telehealth distance education course, more participants are women and they perform better than men.¹¹ This indicates that women have become aware of telehealth expansion and are seeking to increase their professional qualifications.

Given the above and considering the increase and importance of women in the labour market and in the field of telehealth, the aim of this study was to evaluate the profile, participation and major motivation of women enrolled in the Master's Degree Course of the Brazilian Postgraduate Programme on Telemedicine and Telehealth at distance.

Methods

A cross-sectional study was performed to evaluate the profile and motivation of women enrolled in the Brazilian Postgraduate Program on Telemedicine and Telehealth Master's Degree. The course was initiated in 2015 and has a teaching workforce of 18 members, 15 of whom are women. At the time of preparation of this paper, the programme had 57 students - including those who concluded or were still attending, 29 of whom were women.

The questionnaire was developed by the authors using a Google form and internal validation was tested for the control group composed of 10 people (five men and five women) of the multidisciplinary team of Rio de Janeiro State University. The women enrolled in the Postgraduate Program and the female professors were invited to participate and the questionnaire was distributed via the Internet between May and July 2018. To proceed with the questionnaire participants had to confirm, by ticking a box, that they had read the summary and objectives of the research, understood that they would not be identifiable and that they consented to participate in the study.

The questionnaire consisted of multiple choice questions regarding: age, number of children, profession, time since graduation, current occupation, current number of jobs, number of hours worked per week, postgraduate programmes completed, duration of practice in the field of telehealth and their motivation to enrol in the Brazilian Telemedicine and Telehealth Postgraduate programme.

The types of professions, occupations and/or postgraduate programmes were grouped as: health (health practitioner, healthcare provider, health postgraduate course), technology (health informatics areas, computer science and engineers) and human sciences (pedagogy, social service, administration and design). In addition, the number of postgraduate programmes completed before enrolling the Telehealth Program and the level of degrees such as Master and/or Doctoral degrees were evaluated. Their current occupation and workload was assessed by considering the number of jobs and number of workload hours per week

which was grouped as: 1) up to 20 hours weekly, 2) 20-30 hours weekly, 3) 30-40 hours weekly and 4) more than 40 hours weekly. Telehealth experience was evaluated in years grouped as: 1) up to one year, 2) one to three years, 3) three to five years, 4) five to 10 years and 5) up to 10 years.

The women's motivations to enrol in the Telemedicine and Telehealth Postgraduate programme Master's Degree course were grouped as: new opportunity of job, financial gain, professional refinement and interest in innovation.

Results

Of the 44 women who were invited to participate, 36 completed the online form (82%) – 22 students and 14 professors. The mean age of students was 43.5 ± 13.5 years and of professors was 53 ± 13.5 years. Mean time passed since graduation was 18 ± 17 years for students and 31.5 ± 8.5 years for professors. Eleven students did not have children, eight had one child, two had two children and one had three children. Of the professors, four did not have children; four had one child and six had two children. In total, the majority, 21 have at least one child.

The majority of professors were health professionals 10 (71.4%) followed by professors of technology related fields 3 (21.4%) and human sciences 1 (7.1%). None of the professors modified the professional area to another area of current occupation. Of the students, 17 (77.3%) were health professionals – nurses (5), physiotherapist (4), dentists (3), nutritionists (2), and a doctor (1), pharmacist (1) and biologist (1). The five remaining students were from the Human Sciences, in areas such as: social service (1), pedagogy (1), management (1), design (1) and an academic librarian (1). In relation to the current professional occupation comparing with professional graduation completed there was change between the students grouped as Health (14), followed by Human Sciences (6) and Technology (2). In both groups health professionals and health occupations were prevalent between the women enrolled in the Telemedicine and Telehealth Postgraduate Programme.

All professors have Master's and PhD's degrees since it is a requirement to participate as a professor in the Brazilian Telemedicine and Telehealth Postgraduate Programme. The health professionals, including the professors and the students, have at least one specialisation in their health areas. One health professional student had concluded her specialisation, Master and PhD degrees in health areas before enrolling in the Program. Two students of technology areas had concluded one specialisation in their specific areas.

Ten women health professionals (6 students and 4 professors) work in two jobs per week. Thirteen women (4 students and 9 professors) work 40 hours per week, 16 (11 students and 5 professors) work 30-40 hours weekly, 2 students work 30-20 hours weekly and 5 students up to 20 hours weekly. The workload per week did not seem to

interfere with the motivation for professional qualification to work in Telehealth.

Eight of 22 students reported no prior activity in the telehealth field; 3 reported up to 1 year, 5 (1 to 3 years), 4 (3 to 5 years), 1 (5 to 10 years) and 1 reported more than 10 years' experience. Of the 14 professors: 1 reported 1 to 3 years, 6 (3 to 5 years), 4 (5 to 10 years) and 3 reported more than 10 years' experience. The majority of the students did had little or no experience in telehealth.

Major motivations to enrol in the programme were professional refinement (23) followed by new job opportunity (20), financial gain (19) and interest in innovation (14). Most of the participants chose more than one option in the online form. Only the students' group choose one option: two students from technology areas reported interest in innovation and three students from health areas in professional refinement. None of the professors chose interest in innovation as their reason for motivation in this field. Results are shown in Table 1.

Discussion

This cross-sectional study was conducted to explore the profile and motivation of Brazilian women enrolled in the Master's Degree Course of the Brazilian Postgraduate Programme on Telemedicine and Telehealth at distance. Most participants were middle aged, working in healthcare with at least one specialisation for the majority of the students. All professors had a Master and PhD degree. Mean workload was more than 30 hours a week and most had at least one child. Telehealth, experience was limited and major motivations to participate were professional refinement and new job opportunity.

As far as we know, no similar study has been published before providing information relating only to profiles and motivations of women participating in a Telemedicine and/or a Telehealth Postgraduate Programme. Telehealth is a notable growth area, as can be seen by the increase in the number of general postgraduate programmes in Telehealth

globally,² and in the increasing number of women in the field of informatics and telehealth.¹⁰

Women are increasing their participation in different fields of specialisation. The number of women participating in the overall labour market has grown from 18% to 27% in the 20th century and, in health area, female participation is approximately 70%, with 62% in senior positions.¹² In addition, 33.5% of Brazilians workers in the health area are women¹² and they represent the majority in many postgraduate programmes as presented by CAPES in 2015, of the 325,655 post-graduation students, 175,419 are women (54%).⁸ Our findings show that women outnumber men on the Master's Degree Course of the Brazilian Postgraduate Programme on Telemedicine and Telehealth. However, Telehealth mainly remains an area with an insufficient number of women enrolled as health professionals, leaders, IT designers.¹³

To climb the professional ladder, women have had to work hard in their jobs as well as managing their personal life and caring for their children. In a study about women's career choices in radiology in France, 74% of women stated 'yes' or 'probably' that maternity might influence in their career choices.¹⁴ Twenty-one (58.4%) of our sample had children but neither 'number of children', nor 'time since graduation', or 'post-graduation programmes' previously completed had an impact on the decision to enrol in the Telehealth Postgraduate Programme.

Within the work force, working hours have constantly increased since 1990.¹⁴ A Spanish study about women's quality of life found that 38% felt that they worked too much. It was also noted that they have to do more than one task at a time to increase their free time.¹⁵ Twenty-nine participants in our study work more than 30 hours a week, 10 of them work in two jobs and in spite of this 20 of them were taking the course to open new job opportunities and 19 because they seek financial gain from the completing course.

Having a postgraduate qualification is an important factor and improve professional status.⁴ In our study, all professors have a PhD degree and most of the students have completed

Table 1. Women's reasons to participate in the Telemedicine and Telehealth Postgraduate Programme.

	n=	Professional refinement	New job opportunity	Financial gain	Innovation
Students	1	x	x	x	x
	1	x	x	x	
	1		x	x	x
	4	x	x		x
	6		x		x
	2		x		
	3	x			
	2			x	
	2				x
Professors	9	x		x	
	5	x	x	x	
Total	36	23 (63.9%)	20 (55.6%)	19 (52.8%)	14 (38.9%)

at least one specialisation but despite this, 23 were motivated to take the course for professional refinement.

In spite of the small sample size in this study, it portrays the motivation of women who sought the specific professional refinement in the field of Telehealth through a Postgraduate Programme in Brazil. The Masters course began 3 years ago, and of all the women participants we had a response rate of 81.8% (n=36). It is recommended that other studies should be performed with the same aims to identify and investigate profile and preferences of women for telehealth related to labour market issues worldwide, so results can be evaluate on a larger scale.

Conclusion

Regardless of personal life, career and workload, women who enrolled in the programme were in search of professional refinement, new opportunities for professional qualification, opportunity for new jobs and positions in the labour market and, therefore, greater financial gain. This new field of virtual work may be a strategy to deal with balancing working hours and personal life.

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SOCIAL MEDIA AS AN OPPORTUNITY FOR PUBLIC HEALTH INTERVENTIONS: THE #METOO MOVEMENT AS AN EXEMPLAR

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Abstract

Background: Social media have been used exponentially and globally, providing a means for billions of users to connect, interact, share opinions and criticise, becoming one of the main channels of communication for users around the world. One of the most popular free social media networks is Twitter, with more than 100 million active users per day worldwide. **Purpose:** The aim of this study was to analyse a sample of the public conversations generated, using the hashtag #MeToo, around the topic of sexual abuse on Twitter. **Methods:** Using social media marketing software, the use of the #MeToo hashtag was analysed over a period of 60 days (14 September 2017 to 13 November of 2017). **Results:** The #MeToo conversation was mainly in English (79.3%), located in the United States (48.2% of cases), but with global repercussions. The volume of mentions of the #MeToo hashtag was far greater (97.7%), compared with other hashtags related to violence over this period of time, using mostly Twitter (96.2%). **Conclusions:** These results suggest that it is possible to describe different groups using the social media, and analyse their conversations to identify opportunities for successful public health interventions. If the topic is relevant for the general public, it will generate interest and conversations at the global level, supported by a universal and borderless channel such as Twitter.

Keywords: social media; Twitter; sexual harassment; public health; primary prevention.

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Introduction

Social media use has grown exponentially and is used globally, becoming a standard means of communication for many people.¹ In the medical field, social media have been employed by professionals and researchers as an efficient way for sharing information, networking, building conversations, staying up-to-date and collaborating with peers and patients.² Social media have also been used by patients mainly for social support, but also for emotional expression and social comparison, as shown in a recent systematic review.³

Twitter is one of the most popular free social media networks worldwide, widely used for micro-blogging. In a 280-character message (“tweet”) users can post photos and videos, mention others, add keywords using the hash symbol before a word (“hashtag”), and re-share (“retweet”) messages, thus spreading information to followers. Hashtags make it easier to find and share information related to specific topics, as they facilitate the discovery of messages, the formation of lists of interests, and the engagement of the community. Tweets are posted publicly on the users’ profiles, but the network also supports private “direct

messages”. There are 100 million active users per day around the world on Twitter,⁴ making it one of the most influential social media networks for generating conversation, following the latest news updates, and receiving important communications from state actors and agencies. This is one of the reasons why Twitter has also attracted the interest of healthcare professionals and researchers.⁵

Public health is “the science and art of preventing disease, prolonging life and promoting human health through organized efforts and informed choices of society, organizations, public and private, communities and individuals”.⁶ Violence against women is considered a global public health problem and a violation of human rights, which seriously affects women’s health (physical, sexual, reproductive, and mental health), with a potentially large impact on morbidity and mortality.⁷ According to the WHO, “action is clearly needed”, underlining that especially the health sector has an important role to play, considering the serious health risks faced by women and their families.⁷

“Me Too” is a well-known movement against sexual harassment and assault. The phrase was first used in 2006 by the American social activist and advocate Tarana Burke, but

its use expanded after the sexual misconduct allegations against Harvey Weinstein and others.⁸ In particular, messages containing the #MeToo hashtag spread rapidly in October 2017, after being popularised by actress Alyssa Milano, who encouraged victims of sexual harassment to tweet about their own experiences and to highlight the magnitude of the problem. Eventually, the use of this hashtag significantly impacted the discourse regarding workplace culture.⁹ In this sense, the #MeToo movement appears as an opportunity to raise awareness of sexual harassment as a public health issue.¹⁰

Media campaigns can directly or indirectly affect health-related behaviours across large populations.¹¹ They are considered powerful tools in health promotion and disease prevention because of their wide out-reach, appeal, and cost-effectiveness.¹² Therefore, careful planning of the contents of campaigns, and their fit with the target audiences are crucial.¹¹ There is evidence for the success of such campaigns to be determined by factors such as targeting, networking, use of SMART (specific, measurable, achievable, realistic, time bound) objectives, continuous evaluation, and compliance with national and international policies.¹³

The social media have become one of the main channels of communication for users around the world. One of the most popular free social media networks is Twitter, with more than 100 million active users per day worldwide. Despite its widespread use by the public and health care professionals, there is little research on patterns of hashtag-use on Twitter¹⁴ and a shortage of evidence regarding its impact on public health.¹⁵⁻¹⁷ Investigating messages and behaviour on social media could provide a unique insight into the possible effects of health information reaching large segments of the public.¹⁸⁻¹⁹ There is a growing body of literature called “Infodemiology”,¹ which includes research such as Eysenbach’s pioneering study on the relationship between Internet search behaviour and influenza incidence,¹⁸ or Cooper and colleagues’ work on exploring the relationship between information demand on cancer, (e.g. incidence, mortality), and news coverage (information supply).^{8,20} Eysenbach defines this as the science of distribution in an electronic medium, specifically the Internet, or in a population, with the ultimate aim to inform public health and public policy.¹⁸

The current study analyses the public conversation concerning the topic of sexual abuse on Twitter articulated around the hashtag #MeToo using the high-profile example of Harvey Weinstein as an exemplar, and examining the opportunities that such cases offer for impacting public health interventions.

Methods

Posts in various social media networks were examined over a period of 60 days – from 14 September to 13 November

2017 – using the social listening tool Radian6 (developed by Salesforce),²² which collects and analyses information shared publicly online.²³ This period was selected as it includes the date of the public fall of Harvey Weinstein on 8 October 2017, which propelled the #MeToo movement and triggered the documentation of the prevalence of sexual assault and harassment in the workplace. The analysis and monitoring criteria were specified in a broad manner, without geographical or linguistic limitations. The main hashtag “#MeToo” was compared with other specific keywords related to violence against women: #genderviolence, #ipv, #familyviolence, #childabuse and #elderabuse.

A topic trend analysis was used to determine the highest and lowest mentioning activity of the hashtag. This module is provided by Radian6 and determines the highs and lows of any brand in terms of mentions. This module allows for the analysis of the number of mentions and the identification of factors contributing to their gain or loss. Such an analysis supports campaign monitoring or crisis management, as it demonstrates the positive or negative impact of a hashtag.²³ It is also most helpful for keeping track of conversation trends over a period of time and understanding why a conversation had a spike in a specific moment.²³ Finally, word clouds of the conversations were created, analysing the top 50 words from the last 1,000 messages containing the selected hashtags.

Results

The mentions of the #MeToo hashtag were significantly higher (97.7%) than other hashtags related to violence (i.e., #genderviolence, #ipv, #familyviolence, #childabuse, #elderabuse, #intimatepartnerviolence). Twitter was used in 96.2% of the cases; the remaining 4.8% were distributed amongst other social media networks (comments on any social media post 1.9%, blogs 0.6%, Facebook 0.1%, forum replies 0.5%, mainstream news 0.4%, content aggregators 0.2%, other 0.2%).

Of the messages containing the #MeToo hashtag 79.3% were in English. 48.2% of the messages originating from the United States, followed by the UK, Canada, India, the Netherlands and France with respectively 4.7%, 3.8%, 3.3%, 2.7% and 1.9% of the messages. As expected, the use of the hashtag in English triggered a conversation around sexual harassment worldwide, with messages and content being posted in the same language.

The results of the trend analysis are presented in figure 1. The peak coincides with the launch of the tweet of Alyssa Milano on 15th October 2017 (Figure 2), which was followed by a multitude of celebrities and users adding messages with denunciations, support and solidarity using the hashtag #MeToo. Only 24 hours later, that tweet reached almost 50,000 re-tweets.

In comparison with the trend of other hashtags, which remained stable over the same time period (Figure 3),

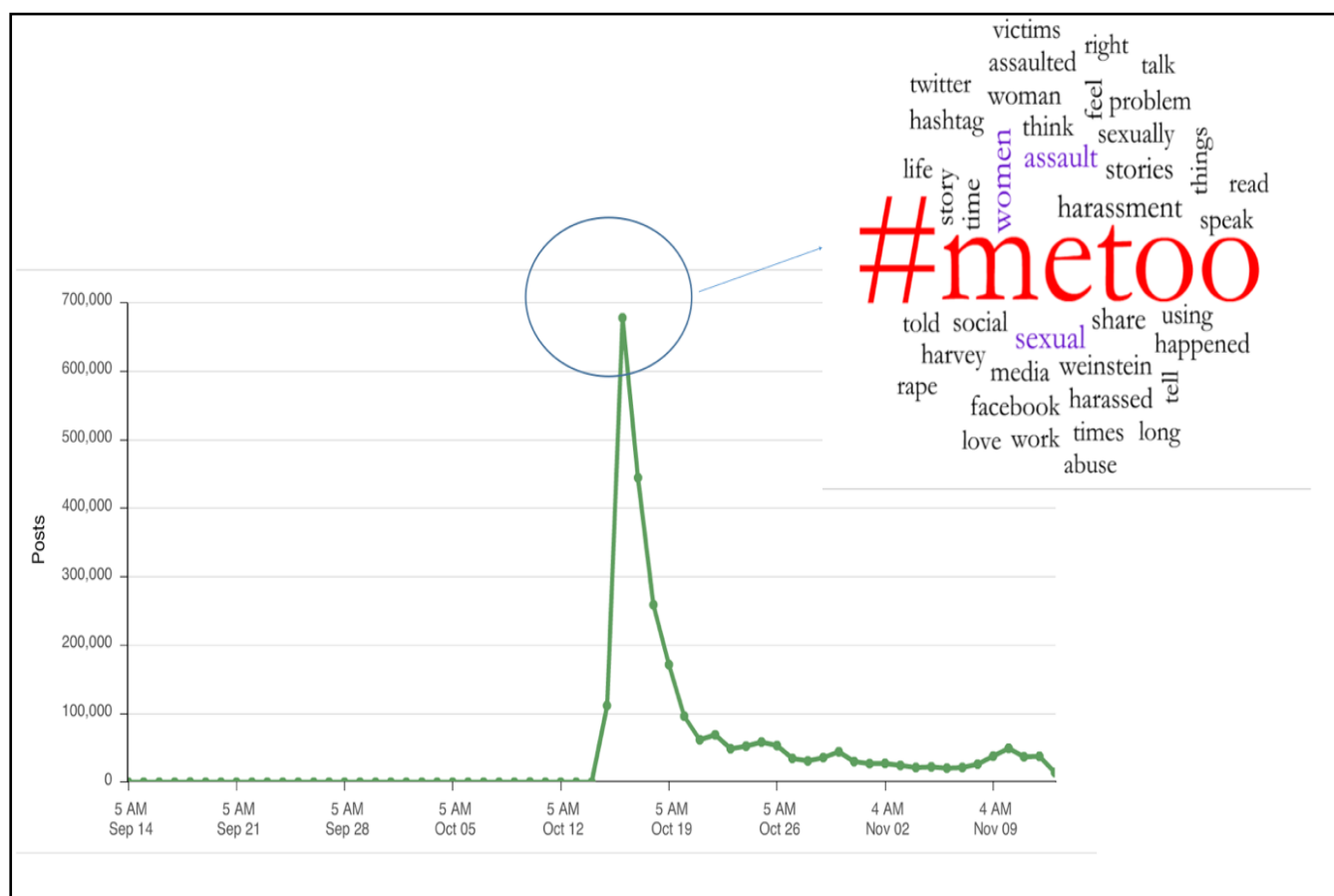


Figure 1. Topic trends analyses of the hashtag #MeToo.



Figure 2. Tweet of Alyssa Milano (October 15, 2017).

#MeToo had a noteworthy spread with more than 2.5 million impressions by mid-October. Examples of word clouds,

which allowed exploration of the main conversation topics related to the keywords defined in the analysis, are presented in the word clouds of Figures 4, 5 and 6. The keywords employed in the conversations can lead to additional insights.

To explore the impact of the hashtag #MeToo off-peak, we also selected a random day (6 November 2017) and examined the conversation around #MeToo. In just 7 minutes, approximately 100 tweets were posted by 84 contributors, reaching more than 274,620 accounts and 443,840 impressions. (Figure 7) For Twitter metrics, ‘reach’ represents the size of an audience for a conversation, and ‘impressions’ measures the total number of views of a conversation.

Discussion

The #MeToo movement has accomplished an important milestone by opening up an area which was considered by many a taboo.²⁴ It is a perfect example of how a discussion on sexual harassment has affected society, raising awareness,²⁵ and becoming an opportunity for the public to consider sexual harassment as a health problem with its implications for prevention and promotion.¹⁰

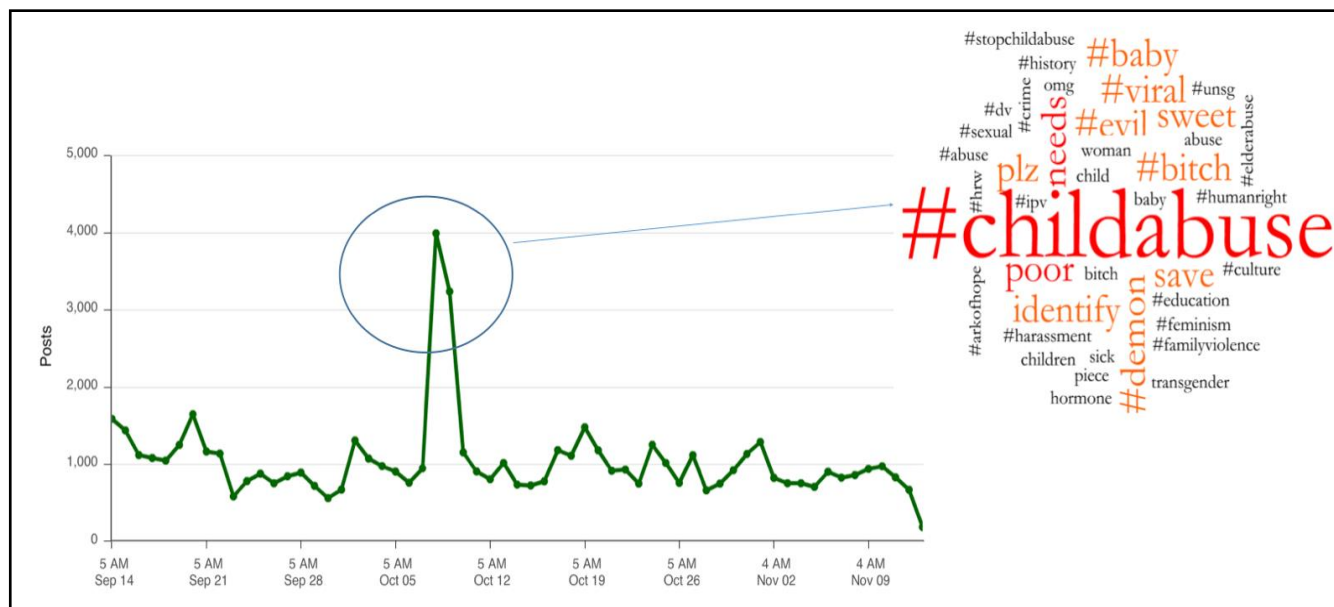


Figure 3: Topic trend analysis and conversation cloud of the hashtag #childabuse.

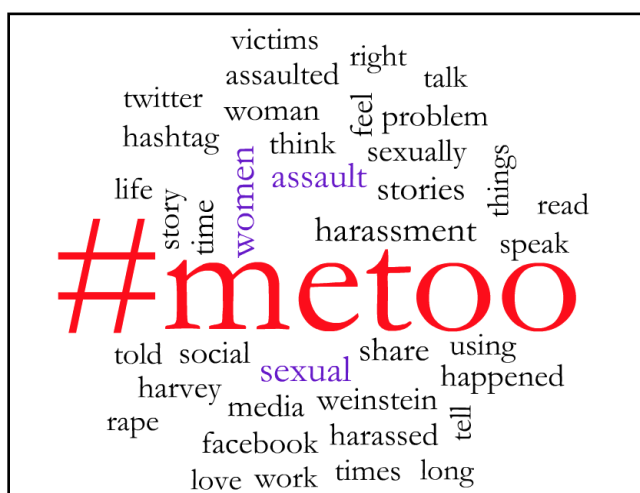


Figure 4. Word cloud for the #MeToo hashtag.



Figure 5. Word cloud for the #genderviolence hashtag.

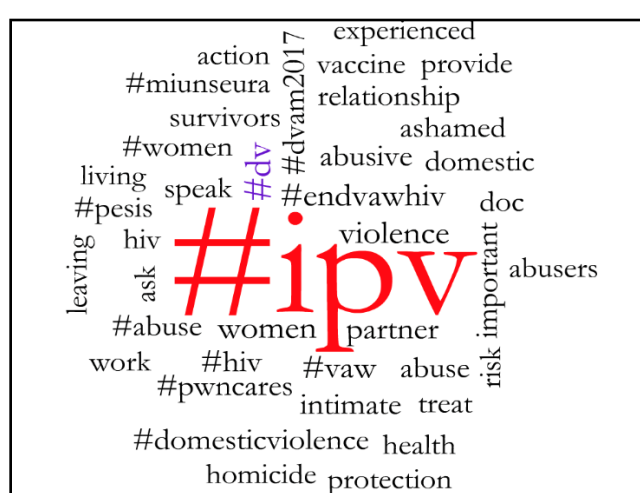


Figure 6. Word cloud of the #ipv hashtag.

The World Health Organization (WHO) calls for a major scaling up of global efforts to prevent all kinds of violence against women by addressing the social and cultural factors behind it.⁷ This is particularly urgent as violence against women is considered a “global health problem of epidemic proportions” with more than 1 in 3 women being a victim of sexual harassment or gender-based physical or sexual violence, and resulting in serious health and mental health consequences.⁷

Even when women do not label their experiences as “sexual harassment”, negative outcomes are evident across lines of the industry sector, occupation, ethnicity, race, and social class. Sexual harassment undermines professional and educational attainment, and mental and physical health.⁷ A 2012 review found that sexual harassment doubled the risk of women undergoing persistent psychological distress two

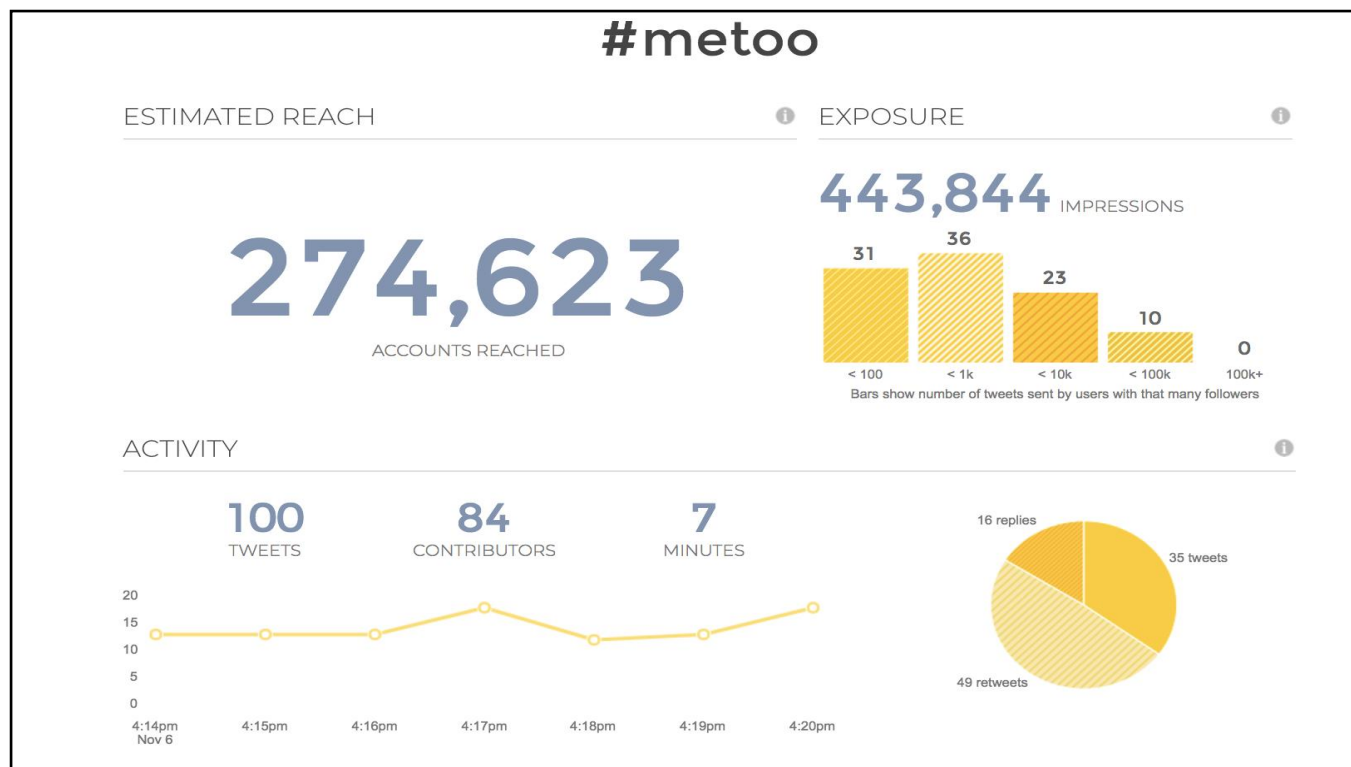


Figure 7. A snapshot of the #MeToo hashtag metrics on 6th November 2017.

years after their experience, while such a risk was not evident in men.²⁶ Any form of gender violence, including sexual harassment, acts as a chronic stressor – even after the removal of the threat. It is well known that for some chronic diseases (including cardiovascular diseases) and cancers, stress is an independent risk factor.²⁷

Efforts for primary prevention are increasingly recognised as critical and necessary. Strategies to prevent sexual violence before it occurs include universal interventions directed at the general population, as well as selected interventions aimed at those who may be at increased risk for perpetrating sexual violence.²⁸ Not only is there a lack of effective prevention strategies for sexual violence, but there are also gaps in the literature as to whether or not these initiatives to prevent sexual harassment in the workplace impact health outcomes effectively.^{10,28}

Social media can be used for media campaigns for health promotion and disease prevention when campaigns are properly planned and targeted to specific groups of population.¹¹

This study supports the need to explore the audience of social media and their conversations, analyse the users' interests in different topics, detect the needs and concerns of the population, explore the local and international impact, and, subsequently, design and establish proper successful public health interventions.

Future research should focus on the content of the conversations and interactions, their impact and more importantly, invest in rigorous evaluation research to ensure

efficient interventions using social media. Increased societal awareness could help identify target populations and contribute to develop adequate preventive campaigns.

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FEMINISATION OF DENTISTRY IN BRAZIL FROM THE PERSPECTIVE OF A MOOC-TYPE DISTANCE COURSE – A SHORT REPORT

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Abstract

The Brazilian public healthcare system (SUS - Brazilian Healthcare System) provides free dental care, covering almost half of the Brazilian population. Providing continuing education to thousands of professionals is a difficult and expensive task given the country's large size. SUS' Open University in partnership with public universities provides ongoing education to thousands of healthcare professionals using technological resources for distance learning. A distance learning course, in the MOOC (Massive Open Online Course) modality, was developed to provide continuing medical education for dental surgeons to assist patients with chronic diseases. The course is free and has registered 13,089 participants. **Aim:** The purpose of this study is to present the profile of the MOOC course participants. **Methods:** Secondary data were obtained from Federal Council of Dentistry, the National Registry of Health Facilities, the National Institute for Educational Studies and Research Anísio Teixeira and the Registry of Higher Education Institutions and Courses (e-MEC). Data of the MOOC course were collected in the Arouca Platform. **Results:** Dentists in Brazil are predominantly female. However, in some specialties there are more men than women. The majority of participants on the course were female 73.5% and in the age group of 21-40 years. **Conclusion:** This phenomenon is similar to other countries, and needs to be better investigated in Brazil, so that public policies of continuing education of healthcare professionals by means of distance learning, may take the profession's feminisation into consideration.

Keywords: women; distance learning; dentistry; continuing dental education; MOOC; Brazil

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Introduction

The Brazilian public healthcare system (SUS – Brazilian Healthcare System) is one of the few public systems in the world which provides free dental care to the population. In 2018 there were 27,661 oral health teams, providing coverage to 41.8% of the Brazilian population estimated at 209,090,169 million inhabitants.¹ One of the problems faced by SUS is to provide continuing education through on-site courses for so many professionals, in a country as large as Brazil. This can be achieved by incorporating currently available technological resources and providing technology enabled distance education. In 2010 the Brazilian Ministry of

Health created the SUS' Open University (UNA-SUS).² In partnership with public Brazilian universities, UNA-SUS provides continuing education to qualifies thousands of healthcare professionals throughout the country by means of distance courses.³ A distance course, in the MOOC (Massive Open Online Course) modality, was developed to provide continuing dental education to assist dental surgeons in managing patients with chronic diseases.

The free course addressed three epidemiologically important pathologies: diabetes, hypertension and chronic kidney disease. Provided in two editions from 2016 to 2018, the course had 13,089 participants. The purpose of this study is to investigate the feminisation of dentistry by examining

the profile of the participants of certified MOOC courses for dentists offered nationally by distance learning.

Methods

This is a cross-sectional, descriptive study conducted with the collection of secondary data from different sources. Data of dentists were obtained from the databases of the Federal Council of Dentistry⁴ and National Registry of Health Facilities⁵ (CNES) database. Data of dentistry courses were obtained from the National Institute for Educational Studies and Research Anísio Teixeira (INEP)⁶ higher education data and Registry of Higher Education Institutions and Courses (e-MEC).⁷ Data of the MOOC course were collected in the Arouca Platform.³ Descriptive statistics are used for the data presentation.

The study was approved by the research ethics committees of the School of Dentistry, University of São Paulo (no. 2.201.772). This investigation was conducted according to the Declaration of Helsinki.

Results

The first two Dentistry courses in Brazil were offered in 1884.⁸ After a little more than 130 years, Brazil has the largest number of university courses in dentistry, with 331 courses providing 40,077 openings every year^{6,7} and consequently, it has the largest number of dentists worldwide (268,512), according to the Federal Council of Dentistry, the institution responsible for supervising the professional practice in the country.⁴ Over the last 50 years there has been a steady increase in the number of female dentists in practice such that 54.9% of dentists are now female (Figure 1).⁴

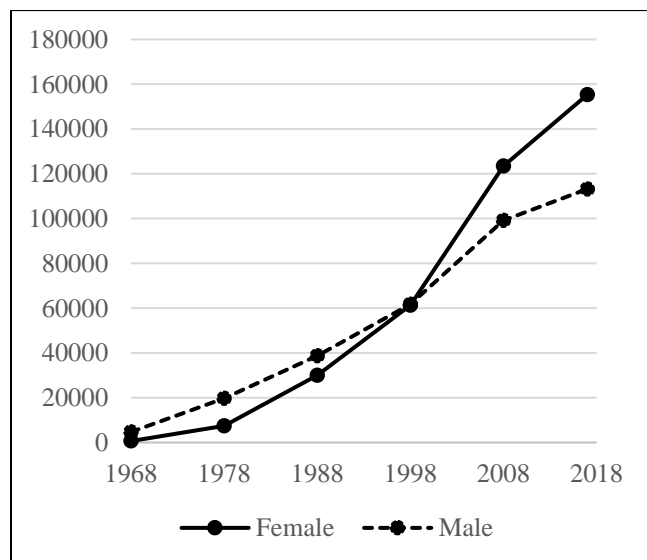


Figure 1. Brazilian dentists by gender from 1968 to 2017.

There are also progressively more females in dental specialties with a female prevalence in paediatric dentistry

(87%), restorative dentistry (66%), endodontic (64%), orthodontic (58%) and periodontic (54%) specialties. They are however a minority in the surgery (22%) and dental Implant (28%) specialties.⁴ Compared to other countries, there are more female dentists in Brazil than males.^{4,8,9}

The profile of participants in the MOOC course, Dentistry for Patients with Chronic Diseases (DPCD), followed the same trend of feminisation. Of the 13,089 participants, 73.7% of those enrolled in the first edition and 73.6% in the second edition were female dentists reflecting the feminisation of Dentistry in Brazil. Enrolled participants, male and female came from 1,752 of the country's 5,570 municipalities (31.5%). The course, which is free, was divided into three units, requiring 45 hour of study to complete the modules and addressed issues about the dental care of patients with diabetes, chronic kidney disease and hypertension (Figure 2).

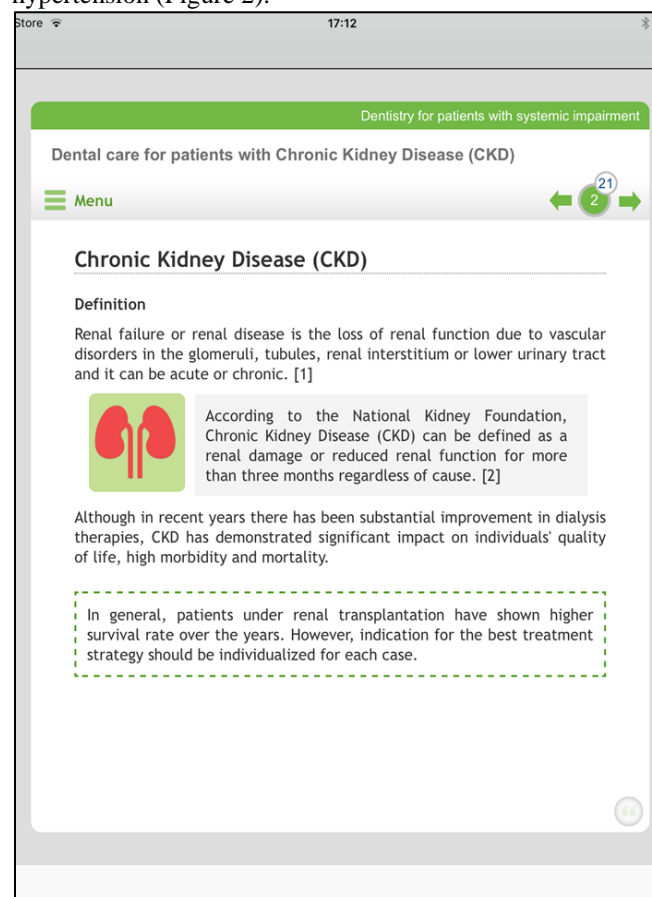


Figure 2. Illustrative image of the English version e-book.

Certification of satisfactory completion of the course was granted if the student correctly answered, at least 70% of the 10 questions in a multiple-choice questionnaire. The course was completed by 30% of all individuals in the first edition and 28% in the second one. The course content is still made available in free mobile applications in Google Play and Apple Store.

Discussion

By incorporating the currently available technological resources, the Brazilian public healthcare system SUS provides continuing education to thousands of healthcare professionals spread throughout the country, by means of MOOC-type distance courses. More than 1,500,000 healthcare workers have already participated in continuing education and qualification courses through the UNA-SUS system distance learning.² The MOOCs are developed by Brazilian public universities in partnership with UNA-SUS. The high Internet penetration in Brazil (67% of the population had access to Internet in 2017) and use of Mobile phones to access Internet (71%)¹⁰ have allowed dissemination of knowledge to professionals living in distant areas and without access to more specialised education. Probably these factors explain the success of DPCD course. The predominantly female profile of the individuals enrolled in MOOC Dentistry for Patients with Chronic Diseases reflects the growing prevalence of women in dentistry in Brazil. This is due in part to the growing inclusion of women in education from the elementary levels to university, and subsequently in specialisation and postgraduate courses, since the 1980s.⁸ In addition, more women complete high school and enter higher education than men.^{6,7}

Despite female prevalence in Dentistry, males predominate in some specialties, such as surgery. This may affect the provision of specialised dental services in the medium and long term. Likewise, although the number of dentists has increased over the time, the geographical distribution of professionals is uneven, with most of the professionals concentrated in the Southeast region.

Limitations of this study such as the use of secondary data must be considered, as the secondary databases may be incomplete and may need to be updated and continuously maintained to be considered as reliable.

Conclusion

The MOOC for dentistry for patients with chronic diseases shows a picture of the feminisation of dentistry which has occurred in the last 20 years. A phenomenon that is similar to that of other countries, it needs to be better investigated in Brazil, so that public policies such as the qualification of healthcare professionals by means of distance education, may take the profession's feminisation into consideration.

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Special Theme « Women in eHealth »

Résumés des articles publiés en anglais
2018 - 2019



DEFINIR UN MODELE D'ASSISTANCE EN LIGNE, FONDE SUR LES PREUVES ET SUR LA THEORIE, POUR SOUTENIR LES SAGES-FEMMES EN DETRESSE PSYCHOLOGIQUE AU TRAVAIL.

Sally Catherine Pezaro

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Résumé

Le bien-être psychologique des sages-femmes peut avoir un lien avec la sécurité et la qualité des soins obstétricaux. Pour cette raison, la détresse psychologique au travail des sages-femmes doit être prise en compte afin d'atteindre les objectifs de développement durable des Nations Unies en matière de santé maternelle. Des recherches antérieures ont permis d'élaborer une vision globale utilisant la télémédecine, la e-Santé et la m-Santé pour concevoir et développer une assistance en ligne destinée à soutenir les sages-femmes en détresse psychologique au travail. Ce document décrit comment un modèle d'assistance, fondé sur les preuves et sur la théorie, a été défini par le biais d'une revue narrative, d'une revue critique réaliste, d'une étude Delphi en deux tours et d'une revue systématique mixte de la littérature. Les études menées préconisent que cette assistance en ligne soit conçue de manière à préserver l'anonymat et la confidentialité des sages-femmes ayant recours à cette assistance. Un accès mobile 24 heures sur 24, une modération efficace, un forum de discussion en ligne, ainsi que des éléments juridiques, éducatifs et thérapeutiques regroupés au sein d'un « guichet unique » en ligne sont également de mise. De plus, une simple analyse des utilisateurs peut être effectuée pour identifier les personnes jugées à risque. Le modèle global de cette assistance particulière est décrit à l'aide d'une check-list et d'un guide ayant fait l'objet d'une validation. Ce modèle spécifique s'est inspiré du modèle de cheminement vers la sortie de l'anonymat et du modèle transactionnel révisé du stress professionnel et des stratégies d'adaptation (coping). Ces recherches s'inscrivent dans le cadre du Medical Research Council relatif au développement d'assistances complexes. Des recherches futures dans ce domaine seraient également intéressantes. Si cette assistance était développée et testée plus largement, les sages-femmes et les utilisateurs du service de maternité pourraient bénéficier de soins obstétricaux plus sûrs, plus productifs et de meilleure qualité.

Mots-clés : métier de sage-femme, assistances complexes, m-Santé, e-Santé, stress au travail.

Women in eHealth. Pezaro SC, J Int Soc Telemed eHealth 2018;6:e8

PERCEPTION PAR LES FEMMES ENCEINTES DE L'UTILISATION DE LA M-SANTÉ POUR S'INFORMER SUR LA SANTÉ MATERNELLE DANS LES COMMUNAUTÉS RURALES, ILE-IFE, NIGERIA

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Résumé

Contexte : L'accès limité aux services de santé maternelle ainsi que leur faible utilisation par les femmes vivant en milieu rural jouent un rôle majeur dans la mortalité maternelle élevée du Nigeria. Les structures de soins inappropriées et le personnel de santé inadapté des communautés rurales figurent parmi les principaux freins à l'accès des femmes aux services de santé maternelle ainsi qu'à leur utilisation. Mettre à profit la santé mobile (m-Santé) pour renforcer l'offre de services de santé aux femmes vivant dans des zones reculées permettra d'améliorer l'accès aux services de santé génésique et de réduire la mortalité maternelle. Le but de cette étude est d'analyser la perception par les femmes de l'utilisation de la m-Santé pour s'informer sur la santé maternelle dans les communautés rurales. **Méthodes :** une étude transversale descriptive a été menée à l'échelle communautaire impliquant 403 femmes en âge de procréer (âgées de 15 à 49 ans) ayant accouché dans les cinq années précédant l'étude. Les données ont été recueillies pendant deux semaines à l'aide de questionnaires structurés. **Résultats :** la majorité des femmes possédaient des téléphones portables (91 %) mais seulement 48 % d'entre elles les utilisaient pour s'informer sur la santé maternelle et 87,3 % avaient une perception positive de l'utilisation de la m-Santé pour s'informer sur la santé maternelle. Les femmes ayant une perception positive avaient plus de chances d'accéder à un établissement de santé pour leur accouchement que celles ayant une mauvaise perception (OR=1,72, SE=0,6, CI=0,92-3,22). **Conclusion :** les femmes percevaient positivement l'utilisation de la m-Santé mais utilisaient peu leur téléphone portable pour s'informer sur la santé maternelle. Des méthodes innovantes comme la m-Santé permettant de renforcer l'offre de services de santé maternelle pour les populations difficiles à joindre sont nécessaires d'urgence pour soutenir les efforts déployés par le Nigeria afin d'atteindre d'ici 2030 les objectifs mondiaux recherchés en matière de santé maternelle et infantile.

Mots-clés : m-Santé ; communautés rurales ; accouchement ; mortalité maternelle ; informations sur la santé maternelle ; réceptivité à la e-Santé

Women in eHealth. Ayamolowa LB, et al., J Int Soc Telemed eHealth 2018;6:e9

ADOPTION DE LA TECHNOLOGIE NUMÉRIQUE DANS LA PRATIQUE DU MÉTIER DE SAGE-FEMME - EXPÉRIENCES ET PERSPECTIVES TIRÉES DE SIX PROJETS DANS HUIT PAYS (2014 - 2016)

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Résumé

Cet article décrit six projets de l'Observatoire des femmes pour la e-Santé (ou WeObservatory) de la Fondation Millennia2025 « Femmes et Innovation » relatifs au métier de sage-femme. L'objectif était d'encourager l'adoption des technologies de l'information et de la communication (TIC) dans la pratique du métier de sage-femme dans huit pays, de 2014 à 2016. Le WeObservatory est un incubateur d'inclusion numérique visant à réduire la mortalité maternelle et néonatale dans les pays disposant de ressources limitées, en renforçant la pratique du métier de sage-femme grâce à l'accès aux TIC et aux applications de e-Santé. Cet article décrit comment la collaboration avec le WeObservatory a permis de soutenir ces projets dans le développement et l'adoption de solutions numériques pour la pratique du métier de sage-femme. Il étudie les réponses des responsables de projets à une enquête en ligne réalisée par le WeObservatory en janvier 2018. Leurs réponses ont apporté un éclairage sur les opportunités et défis rencontrés dans le cadre de ces projets pouvant susciter de futurs projets de e-Santé pour la pratique du métier de sage-femme. Renforcer la capacité des sages-femmes à adopter les compétences numériques permettra d'améliorer la qualité des soins de santé dispensés aux mères et à leurs nouveau-nés dans les pays à faible revenu.

Mots-clés : e-Santé ; métier de sage-femme ; santé maternelle ; applications TIC ; santé mobile

Women in eHealth. Perez-Chavolla L, et al. J Int Soc Telemed eHealth 2019;7:e2

PROFIL ET MOTIVATIONS DES FEMMES INSCRITES AU PROGRAMME BRÉSILIEN D'ENSEIGNEMENT SUPÉRIEUR À DISTANCE EN TÉLÉMÉDECINE ET TÉLÉSANTÉ

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Résumé

Objectif : la participation des femmes à la télésanté prend de plus en plus d'ampleur à travers le monde et elles doivent se préparer à travailler sur ce nouveau marché de l'emploi. L'objectif de cette étude a été d'évaluer le profil et les motivations des femmes inscrites au programme brésilien d'enseignement supérieur en télémédecine et télésanté. **Méthodes :** une étude transversale a été réalisée de mai à juillet 2018 auprès de toutes les femmes inscrites au programme d'enseignement supérieur, à l'aide d'un questionnaire anonyme en ligne (Google form). Il s'agissait d'un questionnaire à choix multiples portant sur : l'âge, le nombre d'enfants, la profession, la date d'obtention du baccalauréat, l'emploi actuel, le nombre actuel d'emplois occupés, la charge de travail, les programmes d'enseignement supérieur achevés, l'expérience en télésanté et sa durée, les motivations pour s'inscrire au programme d'enseignement. Les données recueillies ont été exportées vers une feuille de calcul Excel, puis synthétisées et analysées. **Résultats :** 36 femmes sur 44 ont participé au sondage. L'âge moyen et le temps écoulé depuis le baccalauréat étaient respectivement de $43,5 \pm 13,5$ ans et 18 ± 17 ans pour les étudiants et $53 \pm 13,5$ ans et $31,5 \pm 8,5$ ans pour les professeurs ; 25 femmes avaient au moins un enfant, travaillaient plus de 30 heures par semaine et 10 d'entre elles occupaient deux emplois. Les professionnels de santé et les métiers de la santé prédominaient dans les deux groupes. La plupart des étudiants avaient peu d'expérience ou aucune expérience en télésanté. Les motivations, dans l'ordre décroissant de fréquence, étaient l'amélioration des compétences professionnelles (63,8 %), les opportunités de travail (55,5 %), le gain financier (52,7 %) et l'innovation (38,8 %). **Conclusion :** indépendamment de l'âge, des enfants, de la charge de travail et de la qualification professionnelle, la motivation principale des femmes pour s'inscrire au programme d'enseignement supérieur en télésanté était l'amélioration des compétences professionnelles dans ce domaine.

Mots-clés : télémédecine ; télésanté ; femmes ; travailler ; enseignement à distance ; Brésil

Women in eHealth. Monteiro A, et al. J Int Soc Telemed eHealth 2019;7:e3

LES RÉSEAUX SOCIAUX, UNE OPPORTUNITÉ POUR DES INTERVENTIONS DE SANTÉ PUBLIQUE : EXEMPLE DU MOUVEMENT #METOO

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Résumé

Contexte : l'utilisation des réseaux sociaux a connu une croissance exponentielle et mondiale permettant à des milliards d'utilisateurs de se connecter, d'interagir, de partager des opinions et de critiquer. Les réseaux sociaux sont ainsi devenus l'un des principaux canaux de communication des utilisateurs du monde entier. L'un des réseaux sociaux gratuits les plus populaires est Twitter, avec plus de 100 millions d'utilisateurs actifs chaque jour dans le monde. **Objectif :** l'objectif de cette étude était d'analyser un échantillon des conversations publiques générées sur Twitter, à l'aide du hashtag #MeToo, sur la question de l'abus sexuel. **Méthodes :** à l'aide d'un logiciel de marketing des médias sociaux, l'utilisation du hashtag #MeToo a été analysée sur une période de 60 jours (du 14 septembre 2017 au 13 novembre 2017). **Résultats :** la conversation #MeToo avait lieu principalement en anglais (79,3 %), aux États-Unis (48,2 % des cas), mais avec des répercussions mondiales. Le volume de mentions du hashtag #MeToo était bien plus élevé (97,7 %), comparé aux autres hashtags traitant de la violence au cours de cette période, avec une utilisation prépondérante de Twitter (96,2 %). **Conclusions :** ces résultats montrent qu'il est possible de décrire différents groupes utilisant les réseaux sociaux et d'analyser leurs conversations pour identifier les opportunités d'interventions réussies en santé publique. Si ce sujet a de l'importance aux yeux du grand public, il suscitera un intérêt et des discussions à l'échelle mondiale, avec le soutien d'un canal universel et sans frontières tel que Twitter.

Mots clés : médias sociaux ; Twitter ; harcèlement sexuel ; santé publique ; prévention primaire.

Women in eHealth. Gómez Bravo R, et al. J Int Soc Telemed eHealth 2019;7:e5

FÉMINISATION DU MÉTIER DE DENTISTE AU BRÉSIL, VUE SOUS L'ANGLE D'UN COURS À DISTANCE DE TYPE MOOC - RAPPORT SUCCINCT

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Résumé

Le système public brésilien de soins de santé (SUS - Brazilian Healthcare System) dispense des soins dentaires gratuits à près de la moitié de la population brésilienne. Assurer la formation continue de milliers de professionnels est une tâche difficile et coûteuse, vu la taille immense du pays. En partenariat avec les universités publiques, l'université ouverte du SUS offre une formation continue à des milliers de professionnels de santé à l'aide de ressources technologiques pour l'enseignement à distance. Une téléformation, selon les modalités du MOOC (Massive Open Online Course), a été mise en place pour dispenser un enseignement médical continu aux chirurgiens-dentistes dans le but d'aider les patients atteints de maladies chroniques. La formation est gratuite et a enregistré 13 089 participants. Objectif : l'objectif de cette étude est de présenter le profil des participants aux téléformations du MOOC. Méthodes : les données secondaires ont été obtenues des organismes suivants : Federal Council of Dentistry, the National Registry of Health Facilities, the National Institute for Educational Studies and Research Anísio Teixeira and the Registry of Higher Education Institutions and Courses (e-MEC). Les données du cours en ligne MOOC ont été regroupées sur la plateforme Arouca. Résultats : au Brésil, les dentistes sont majoritairement des femmes. Toutefois, pour certaines spécialités, les hommes sont plus nombreux que les femmes. La majorité des participants au cours étaient des femmes (73,5 %) et le groupe d'âges se situait entre 21 et 40 ans. Conclusion : ce phénomène est similaire aux autres pays et les recherches auraient besoin d'être approfondies au Brésil afin qu'une politique publique de formation continue des professionnels de santé, par le biais de l'enseignement à distance, puisse prendre en compte la féminisation de la profession.

Mots clés : femmes ; enseignement à distance ; médecine dentaire ; formation dentaire continue ; MOOC ; Brésil

Women in eHealth. Garrido D L, et al. J Int Soc Telemed eHealth 2019;7:e6



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