**The 3rd International Seminar of Science and Technology**
**ISST 2023 Vol 3 (2024) 01 006**
*Trends in Science and Technology for Sustainable Living*
Faculty of Science and Technology
Universitas Terbuka

# Technology impact on postpartum culture implementation: Javanese and Chinese culture

Angelina Amanda*, Greysia Susilo, and Alifia Wida Izzati

Universitas Pradita, Interior Design Department, South Tangerang, Banten, Indonesia, 15810

**Abstract** - After giving birth, maternal care still continues. Keeping tabs on women's mental well-being is crucial for creating a conducive surrounding needed for both the mother and her baby. Neglecting the mother's emotional health can produce certain negative side effects starting from Baby Blues (postpartum depression) to the extent of physical bleeding. Consequently, these side effects need to be mitigated by society adopting the proper knowledge on the matter. Sadly, today's practice of treating mothers during this period may differ due to cultural varieties across nations. Indonesia is home to thousands of cultures, that being said, Javanese and Chinese are two ethnicities that populate Java Island. Both have their ways of caring for mothers during postpartum. However, many cultural practices have been concluded to be misconduct in the mother's care. Among many mistreatments, the urge to be completely immobile is still encouraged in these two cultures along with some irrational taboos. In the dawn of Internet of Things (IoT), mothers can benefit from the use of technology. AI has the potential to be an epoch-making development in maternal care. By utilizing researched medical findings and interviews, it is found that AI can help to alternate society's belief towards old postpartum care traditions.

**Keywords:** Chinese culture, IOT, Javanese culture, maternal care, postpartum

## 1 Introduction

Postpartum is a crucial period experienced by women after the birthing process. This phase starts right from the moment the baby is born and can last up to 40 days [1]. This time allows the mother's body to recover, including her reproductive organs. Mothers will have to experience the changes in their physiology for it to adapt to the child's needs. These are some of the physiological changes [2]: Changes in the womb size, where the mother's womb size will shrink back to its before-pregnancy size; Changes in Lochia where lochia itself is a condition where the mother is bleeding from her cervix and genitalia; and changes in breasts (*Mammae*) where the size of the breast will increase as a form of adaption to formulating rich breast milk for the newborn baby.

Furthermore, it also serves as a transitioning period for primiparous mothers, meaning women who give birth for the first time [5]. During this period, primiparous mothers are often more prone to negative feelings. Therefore, a supportive environment for the mother is highly advisable to minimise the risk [7].

Nursing the mother during the postpartum period requires proper knowledge. Many mothers are not privileged with education. Parents will also teach passed-down cultural postpartum teachings.

*Corresponding author: angelina.amanda20@gmail.com

However, culture-based knowledge can be detrimental and not all mothers have the luxury to have their parents near. In Indonesia, we can take Javanese and Chinese cultures to be the model source.

Javanese postpartum culture is central to their traditions of performing *brokohan* and *mendem ari-ari* [8] as well as using postpartum types of equipment such as *stagen* and *pilis* [9]. Aside from food taboos, several activities can be deemed to be harmful to mothers. In particular, the strict, semi-sitting position, in addition to mothers walking and sitting with their feet closed together.

Chinese postpartum culture utilizes the "quarantine" method. This is to maximalise the mother's recovery within the timeframe. The mother will have to stay inside her house at all times with strict prohibitions to prevent the mother from catching a cold as it is perceived to be the number one threat to a speedy recovery.

Javanese postpartum culture includes food taboos and other practices done by midwives or parents. Javanese people believe that traditional herbal foods are better. While this statement is observed to be true, such as the encouragement to eat more vegetables, fruit, tofu, *tempeh*, and many other nutritious foods, there are still dietary limitations to eating eggs, dairy, beef satay, shrimp, and many other potentially nutritious food. This can be a problem as a nutritional imbalance can play a part. As observed, micronutrition deficiencies are to be aware of. Insufficient micronutrition intake can lead to unfavourable health outcomes for maternal health and the baby's health [25].

Other than food taboos, the Javanese postpartum culture highlights the use of traditional tools and herb mix (not to be digested). This method is part of the Javanese Traditional Healing. The mother can use *pilis*, *parem*, *gurita*, and *bengkung/stagen*. This form of healing serves as complementary optional postpartum care for mothers.

*Pilis* is a Javanese inedible herb mix paste that is smeared on the mother's forehead for 40 days. The ingredients include *geganti* leaf, aromatic ginger, turmeric, Cananga leaf, and mint leaf [4]. *Parem* is also similar to *pilis* except it is a water-based ointment that uses rice mixed with aromatic ginger [4][28]. The location of its use is mainly on the arms and legs. *Pilis* and *parem* are believed to maintain vision health and relieve body fatigue [4].No medical threats are found for the use of *pilis* and *parem*. However, the use of *gurita* and *bengkung/stagen* is not advisable since they act as a corset that binds the women's stomach for a smaller stomach. The user might feel "choked" and pain around their stomach since the material is rigid. Hence, early mobilisation is the way to go [4][11].

Concerning Javanese postpartum care tradition, the Javanese believe in the spiritual nature of their postpartum tradition such as *Slametan* [3]. They can also push *duduk senden* (*sitting senden*) for mothers. *Duduk senden* or *duduk sandaran* is a form of sitting position where mothers fold both of their legs and cross their feet [4]. Sitting *senden* brings major discomfort to the mothers as it is linked to their episiotomy wound [12].To add to it, sitting *senden* may have an impact on normal uterus contraction [9]. If the mother is uncomfortable, she can develop psychological stress which can lead to a decreased rate of breastmilk production due to impaired oxytocin release [13]. Indonesia has been facing a low rate in the provision of Exclusive Breast Milk according to Riskesdas 2018 [6]. Therefore, if further discomfort is sustained, it will greatly impact the mother's well-being as well as their infant's.

The Chinese have a distinctive ancient postpartum care called "Zuo Ye Zi" or "Co Guek Lai" which is also often referred to as "doing the month" or Chinese postpartum confinement [14]. This tradition needs an "Ai Guek Lai" which means a friend for a month or one's own parents. Zue Ye Zi tradition includes dietary precautions: *eating hot* food such as *Ciak Po* and other protein-rich food; drinking *angco* tea; restrain from eating *cold* food such as fruit and vegetables; restrain from eating itch-triggering food, carbonated food, and food with leavening agents; and eating too much food [15].

For the mother's hygiene, there are some taboos such as hair washing, praying, and teeth brushing. [14]. Additionally, behavioural precautions include not going outside, avoiding house chores, abstaining from any sexual activity, limiting the number of visitors, and the heavily pushed "stay in bed" tradition [14]. All in all, *Zuo Ye Zi* is a tradition full of support for the mother as protection against Postpartum depression (PPD) which falls under major depression mental disorder [14].

*Zuo Ye Zi* is without its negative consequences on the mother's health. The key takeaway is that PPD must be avoided at all costs. If the mother is under stress it will increase the likelihood she will impact her own mental and physical health negatively. Eating more food is always recommended to promote swift recovery and improve lactation. However, many mothers have developed poor appetites and the fear of getting fat grows tremendously which can inflict stress. The prohibition to eat "cold" food such as fruits and vegetables raises the worry of having micronutrient deficiencies. Restraining mothers to wash their hair and brush their teeth may result in skin rashes and poor appetite since not brushing their teeth can leave a bad taste in their mouths [14].

As Tecuci in 2012 cited, Artificial Intelligence (AI) is the Science and Engineering domain concerned with the theory and practice of developing systems that showcase human behaviour's intelligence characteristics. AI has a branch called Machine Learning (ML) that is made up of toolsets and techniques to develop intelligent algorithms that evaluate and analyse collected data to make predictions and judgements about the actuality of events [17].

Internet of Things (IoT) technology has innovations in wearable technology devices as well as cloud computing [17]. This smart device has a notable role in telemonitoring mothers in hospitals or at their homes since it contains embedded software adhering to its functionality [18]. Utilizing IoT drive mothers to follow self-care principles that lead to the cost-effectiveness of healthcare services which can better satisfy mothers [26]. IoT smart devices come in different forms such as electronic pill dispensers; connected contact lenses; and hand wash detectors.

A particular innovation of IoT in handling postpartum depression (PPD) is the Web-Based Intervention for Postpartum Depression. MumMoodBooster is an intervention program that falls under cognitive behavioural therapy (CBT). It is a website that facilitates treatment consisting of six interactive sessions designed to maximise engagement through low-intensity telephone coaching [19].

Interventions such as those mentioned can help alleviate mothers' worries and discomforts throughout their postpartum journey regardless of their culture. AI innovations such as MumMoodBooster have proved to be encouraging since the treatments have similar success to face-to-face therapy [19].

Indonesia has its own well-known medical platform sites such as ALODOKTER and Halodoc. They both function as telemedicine practice that provides audio, visual and data communication that includes counselling, medical diagnoses, treatment, and remote scientific discussion [20]. Both sites are also equipped with homecare services that mothers can take advantage of during their postpartum period.

Moreover, IoT smart devices such as tech wristbands are deemed to be a feasible system to collect data on the mother's physical activity, sleep, and heart rate which can be helpful by monitoring her well-being throughout her postpartum journey [21].

One of the leading examples to elevate a mother's perineal pain is by utilising the NeoHeat Perineal Healing device. The NeoHeat device uses red and infrared LED light therapy to speed up the mother's perineum recovery [30]. The device optimises Red Light Therapy (RLT) which is proven

to be a safe, non-thermal, and non-ablative treatment of the mother's skin tissue. Hence, it provides skin rejuvenation as means of relaxation and serves as an anti-ageing treatment [22]. Additionally, this device prevents the risk of uncomfortable pain for mothers with Javanese or Chinese backgrounds.


**Fig. 1.** NeoHeat perinal healing devices [29]

Another common issue for mothers is breastfeeding problems. Many mothers can struggle with breast engorgement, excess breast milk, sore nipples, thrush infections, blocked milk duct, mastitis, breast abscesses, and baby tongue ties [29]. Almost often the solution is to use the breast pump tool. Normally, a breast pump is categorised into 2 different groups which are manual (MBP) and electric (SCN) [23]. However, a new innovation of smart breast pumps allows mothers to utilise their smartphones in tracking pumping sessions, the amount of milk produced, and the duration of pumping sessions. This smart breast pump is highly advantageous as it eases mobility and has several hours of battery life. [27].

**Fig. 1.** A smart breastpump [26]

Javanese mothers tend to experience perineal pain if they are to perform *duduk senden*. This pain can be reduced with the help of the NeoHeat device. It provides the necessary heat to soothe the ache in their perineum. The health benefits of this device's application are that her well-being will surely be improved and it minimises stress from pain so the breastmilk will be of higher quality. Javanese mothers often perform massages for smooth breastfeeding, but if it is deemed painful then the mothers

can take advantage of the electric breast pump. This breast pump is an effective way to help mothers who need/want to get into the workforce as it eases mobility and it provides a scheduled breastfeeding timer for a reminder. Scheduling breastfeeding sessions is highly crucial as it reduces the risk of breast engorgement due to excess milk being produced.

Mothers of Chinese backgrounds have certain limitations when it comes to their postpartum culture. Many of those prohibitions are centred around being immobilised (not doing much activity) so as to minimise the risk of channelling wind into the mother's body [15]. Some of these limitations include not being allowed to wash their hair since wet hair might channel wind to the body as it is cold. Hair dryers come into aid for Chinese mothers as they dry their hair quickly and with hot blowing air. The "stay-in-bed" culture is enforced on the basis that moving a lot can create wind into the body. This issue can surely be mitigated by using a portable electric heater fan to control the temperature. In addition to wearing comfortable warm clothing, mothers are also encouraged to eat traditional Chinese food and medication. This can be an issue if the mother is also taking medicines prescribed by doctors as they have to be taken at different times. There have been many applications created such as MyTherapy Pill Reminder, Care4Today, Pillo, and the like that are beneficial to the mothers. Lastly, there are also sites such as Foodartstore.com that sell products like Soupermum (packaged Chinese herbal soup variants). These food products can assist mothers with daily nutritional herbal food with less work from preparing the meal.

## 2 Materials and methods

These findings reviewed and evaluated the phenomenon of Javanese and Chinese culture in regard to maternal psychological distress during mothers' postpartum period. Sources of reviews are through open journals and articles using the following terms: *postpartum, Javanese postpartum, Chinese postpartum, AI,* and *IoT.* Almost all medical journals use a quantitative and qualitative approach to their research findings, utilising randomised controlled trials and interviews. To support the findings, a quantitative approach in the form of a survey done by the author is also added [24]. The purpose of this research method is to analyse and improve the needs of mothers from different cultural backgrounds.

## 3 Results and discussion

This survey was taken by a total of 108 respondents from mothers in Indonesia with different cultural backgrounds.

**Table 1.** Activities During Postpartum

| Activities during postpartum | Responses | Responses |
|---|---|---|
| Utilise the hospital's postpartum service | 25 | 18.1% |
| Do physiotherapy | 4 | 2.9% |
| Do Yoga | 8 | 5.8% |
| Go to the gym to restore the body as it had been before pregnancy. | 3 | 2.2% |
| Go to a lactation clinic to help with breastfeeding | 18 | 13% |
| Not enrolled in any postpartum programs (just proceed with normal activity inside the comfort of their own home) | 68 | 49.3% |
| Will manage according to the emerging situation later | 12 | 8.7% |
| Total | 138 | 100% |

The table above answers the question related to what activities the mother (respondent) did during the postpartum period. Through this survey question, the researcher wanted to analyse the

mother's behaviour during her postpartum period. According to the table above, it was found that almost half of the mothers (49.3%) did not participate in any postpartum programs and instead engaged in their usual household tasks. The first possibility is due to the cost of childbirth which is already quite expensive so it is cheaper not to use any services or programs because the baby has been born. The second possibility is that many postpartum programs or services are not popular and the last possibility is that mothers follow the tradition at home if they have given birth so there is no need to register for a postpartum program. However, the 18.1% of mothers who used postpartum services in hospitals or clinics means that there are still mothers who are determined to complete their postpartum period which is monitored more by medical services. This has an impact on the health of mothers and their babies. Similarly, 13% of mothers who visited lactation clinics for breastfeeding showed their concern for maximising breastfeeding moments for their babies or for complications in breastfeeding.

**Table 2.** Activities During Postpartum

| Sources of information during the postpartum period | Responses | Responses (%) |
|---|---|---|
| Parents | 60 | 20.7% |
| Book/Magazine/Newspaper | 43 | 14.8% |
| Medical Staff | 59 | 20.3% |
| The Internet (Blog, Article, etc) | 50 | 17.2% |
| Influencer/ YouTuber/ Non-Medical Staff | 18 | 6% |
| Social Media Community (Facebook,WhatsApp,Instagram,etc) | 25 | 8.6% |
| Newsletter (e-mail) | 0 | 0% |
| Relatives/Friends | 35 | 12.1% |
| Total | 290 | 100% |

The table above answers the question: "Where do you usually get information about health in the postpartum period? (You can choose more than 1)?". Through this survey question, the researcher wanted to know which source of information about maternal health during the postpartum period was the most common. The results showed that parents (20.7%) and medical staff (20.3%) were the most common sources of information. The reason is that these two sources are the closest to the mother during pregnancy and during the birth process. The internet, which garnered 17.2% of votes, also played a role in being an additional, not primary, source of information for mothers. Similar to books and relatives, which were still more than 10%, this group became a source of supporting information after the Internet.

## 4 Conclusion

Postpartum is an important period for mothers after deliverance. Unfortunately, cultural knowledge of postpartum care might not always be the best in terms of medical accuracy. This birth the drive to utilise the rising AI technology to assist mothers in their daily activities during postpartum.

As both tables from the survey suggest, it is first recorded that the majority of mothers (49.3%) proceeded with their normal activities in the comfort of their own houses. This suggests that mothers are more prone to immobilisation since in a narrow sense, they are confined in the house. The second table shows that the number one source of information for knowledge on postpartum care still relies on parents. This means that mothers from different cultural backgrounds will follow generational postpartum care which might not be correct medically.

## References

[1] D. Indriyani, Keperawatan Maternitas Pada Area Perawatan Antenatal. Yogyakarta: Graha Ilmu, 2013.

[2] D. Maritalia, Asuhan Kebidanan pada Ibu Nifas.(S. Riyadi, Ed.). Yogyakarta: Gosyen Publishing, 2017.

[3] S. Moeis, Religi Sebagai Salah Satu Identitas Budaya (Tinjauan Antropologi Terhadap Unsur Kepercayaan dalam Masyarakat). Bandung: Universitas Pendidikan Indonesia, 2018.

[4] R. Arnanda, Perilaku Pemeliharaan Kesehatan Ibu Nifas Dalam Persprktif Budaya Jawa (Studi Pada Masyarakat Jawa di Kelurahan Binjai Serbangan Kecamatan Air Joman). Medan: Universitas Islam Negeri Sumatera Utara, 2021.

[5] R. V. T. Novita, "Caring Experience of Childbirth Primipara Undergone Emergency Cesarean Section," Jurnal Ilmu Keperawatan Maternitas, vol. 2, no. 1, pp. 25–34, 2019.

[6] Riskesdas, "Profil Kesehatan Kabupaten Ponorogo 2018," Journal of Chemical Information and Modeling, vol. 53, no. 9, pp. 1–174, 2018.

[7] E. L. Ryding, K. Wijma, and B. Wijma, "Psychological impact of emergency caesarean section in comparison with elective caesarean section,instrumental and normal vaginal delivery," Journal of Psychosomatic Obstetrics & Gynecology, vol. 19, no. 3, pp. 135–144, 1998.

[8] F. A. Yani, "Tradisi Terkait Upacara Kehamilan Dan Kelahiran Pada Suku Jawa Di Desa Rintis," Jurnal Multimedia Dehasen, vol. 2, no. 2, pp. 233–238, 2023.

[9] N. H. W. Sugita, "Budaya Jawa Ibu Postpartum Di Desa Candirejo Kecamatan Ngawen Kabupaten Klaten," Jurnal Kebidanan Dan Kesehatan Tradisional, vol. 1, no. 1, pp. 1–99, 2016.

[10] T. S. Mulati and D. Susilowati, "Penggunaan Bebat Perineum Untuk Mempercapat Penyembuhan Luka Perineum Pada Ibu Nifas," Jurnal Kebidanan Dan Kesehatan Tradisional, vol. 3, no. 2, pp. 65–69, 2018.

[11] A. R. Wijayanti, R. Ratnasari, and A. S. Witama, "Studi Kasus Perilaku dan Tradisi Masa Nifas Ny. A," J-HESTECH, vol. 6, no. 1, pp. 17–26, 2023.

[12] E. M. Nagel, M. A. Howland, S. M. Mason, D. A. Fields, E. W. Demerath, J. Stang, and C. Pando, "Maternal Psychological Distress and Lactation and Breastfeeding Outcomes: A Narrative Review," Clinical Therapeutics, vol. 44, no. 2, pp. 215–227, 2021.

[13] G. Ding et al., "Doing the month and postpartum depression among Chinese women: A Shanghai prospective cohort study," Women and Birth, vol. 33, no. 2, pp. 151–158, 2020.

[14] J. H. Raven, Q. Chen, R. J. Tolhurst, and P. Garner, "Traditional beliefs and practices in the postpartum period in Fujian province, China: A qualitative study," BMC Pregnancy and Childbirth, vol. 7, no. 1, 2007. doi:10.1186/1471-2393-7-8

[15] G. Tecuci, "Artificial Intelligence," WIREs Computational Statistics, vol. 4, no. 2, pp. 168–180, 2011. doi:10.1002/wics.200

[16] M. Khan et al., "On ai approaches for promoting maternal and neonatal health in low resource settings: A Review," Frontiers in Public Health, vol. 10, 2022. doi:10.3389/fpubh.2022.880034

[17] C. H. Patil et al., "An IOT based Smart Medicine Dispenser model for Healthcare," 2022 IEEE World Conference on Applied Intelligence and Computing (AIC), 2022. doi:10.1109/aic55036.2022.9848934

[18] J. Milgrom et al., "Internet cognitive behavioral therapy for women with postnatal depression: A randomized controlled trial of Mummoodbooster," Journal of Medical Internet Research, vol. 18, no. 3, 2016. doi:10.2196/jmir.4993

[19] N. O. Hendrawan, E. M. A. Jonemaro, and M. T. Ananta, "Analisis Perbandingan Pengalaman Pengguna pada Aplikasi Halodoc dan Alodokter menggunakan User Experience Questionnaire (UEQ)," J-PTIIK, vol. 7, no. 3, pp. 1030–1038, 2023.

[20] J. Saarikko et al., "Continuous 7-month internet of things–based monitoring of health parameters of pregnant and postpartum women: Prospective observational feasibility study," JMIR Formative Research, vol. 4, no. 7, 2020. doi:10.2196/12417

[21] A. Wunsch and K. Matuschka, "A controlled trial to determine the efficacy of red and near-infrared light treatment in patient satisfaction, reduction of fine lines, wrinkles, skin roughness, and intradermal collagen density increase," Photomedicine and Laser Surgery, vol. 32, no. 2, pp. 93–100, 2014. doi:10.1089/pho.2013.3616

[22] M. Bernabe-Garcia, M. Lopez-Alarcon, R. Villegas-Silva, M. Rodriguez-Cruz, and C. Jimenez-Galicia, "Effectiveness of four manual breast pumps for mothers after preterm delivery in a developing country," Journal of the American College of Nutrition, vol. 31, no. 1, pp. 63–69, 2012. doi:10.1080/07315724.2012.10720010

[23] M. Patel and N. Patel, "Exploring Research Methodology: Review Article", International Journal of Research and Review, vol. 6, no. 3, pp. 48–55, 2019.

[24] E. Aparicio et al., "Nutrient intake during pregnancy and post-partum: Eclipses study," Nutrients, vol. 12, no. 5, p. 1325, 2020. doi:10.3390/nu12051325

[25] K. Mohammad Hossein, M. E. Esmaeili, T. Dargahi, A. Khonsari, and M. Conti, "BCHealth: A novel blockchain-based privacy-preserving architecture for IOT healthcare applications," Computer Communications, vol. 180, pp. 31–47, 2021. doi:10.1016/j.comcom.2021.08.011

[26] One Willow. (2023, April 4). Smart breast pump vs. traditional pumps: Key differences: Willow: Hands-free, App-compatible & wearable breast pumps [Online]. Available: https://onewillow.com/blog/smart-breast-pump-vs-traditional-pumps-key-differences/

[27] Google Arts and Culture. Jamu That We Don't Drink [Online]. Available: https://artsandculture.google.com/story/jamu-that-you-don-39-t-drink-indonesia-gastronomy-network/3AXRflV45co-aQ?hl=en

[28] NHS. Common Breatfeeding Problems [Online]. Available: https://www.nhs.uk/conditions/baby/breastfeeding-and-bottle-feeding/breastfeeding-problems/common-problems/

[29] Mommymatters. NeoHeat: The brightest innovation in postpartum recovery [Online]. Available: https://mommymatters.com/