



Changing the risky beliefs of post-partum women about therapeutic sun-exposure



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ABSTRACT

Background: Many post-partum women hold risky beliefs about perceived therapeutic benefits of sun-exposure in the post-partum period and infancy.

Question: Can a maternity hospital based educational intervention reduce the prevalence of such beliefs among post-partum women?

Methods: In this outcome evaluation of an interventional study, two groups of healthy post-partum women (hospital inpatients) were interviewed, 1–4 days following delivery. The first cross-section (106 women) was recruited prior to in-services for maternity staff; the second (203 women) was recruited after completion of the in-services. Data were compared between the groups.

Findings: More pre-intervention than post-intervention women reported they would expose their baby to sunlight to treat suspected jaundice (28.8% vs 13.3%; $p < 0.001$) or help his/her skin adapt to the sun (10.5% vs 2.5%; $p = 0.003$); or use sunlight to manage breastfeeding-associated sore/cracked nipples (7.6% vs 2%; $p = 0.026$).

Conclusion: This simple, effective educational intervention could be implemented in programmes for parents, health professionals and students.

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1. Introduction

Queensland has one of the highest rates of skin cancer in the world.¹ Primary prevention of skin cancer involves reducing sun-exposure, through avoidance and sun-protection.² Childhood is a critical period for reducing the lifetime risk of skin cancer.^{3,4}

The risk of developing melanoma is highest among adults who were exposed to high levels of sunlight during childhood,⁵ with an estimated two-thirds of melanoma caused by excessive sun-exposure in the first 15 years of life.⁶ Furthermore, melanocytic naevi are an important risk factor for the development of melanoma⁷ and intrinsically linked to sun-exposure in childhood.^{8,9} Thus, skin cancer prevention and the development of sun-protective behaviour should begin in infancy.^{10,11}

Despite substantial investment in skin cancer prevention, there is evidence of inappropriate beliefs about the perceived therapeutic benefits of sun-exposure. More than half the post-partum

women surveyed in one Queensland study¹² held at least one risky belief about the therapeutic uses of sunlight in infancy.^{12,13} The most commonly cited reasons included treating neonatal jaundice, nappy rash and preventing vitamin D deficiency. Independent predictors were maternal age, education level and having a previous child who had been treated with sunlight. Other studies examining the role of health professionals in advocating inappropriate advice about sun-exposure found midwives and doctors (including paediatricians), were a major source of such beliefs.^{13,14} In one study, 42% of midwives and doctors recommended sunlight for the treatment of neonatal jaundice.¹⁴ A recently reported intervention targeting maternity staff to discourage the use of sunlight in the post-partum period and in infancy¹⁵ was deemed successful by maternity staff. However, it was not assessed according to specific objective measures. Here we report the effectiveness of that maternity-hospital based education programme. Within this article the term midwives and related nursing professionals is used to include all nursing professionals who attended women and/or their newborn babies in the post-partum period in these regional hospitals; these included midwives, general registered nurses, paediatric nurses and enrolled nurses.

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2. Methods

2.1. Setting and design

In 2002–2003 midwives and nursing staff of the maternity units of the three largest regional public hospitals (1 intervention and 2 control hospitals) in northern Queensland (Cairns latitude 16°51' S; Townsville 19°16' S; Mackay 21°10' S) and post-partum in-patients from the intervention hospital, participated in a multifaceted controlled intervention to discourage mothers from exposing themselves and their infants to sunlight for therapeutic reasons. The intervention consisted of two main components; the education of midwives and related nursing professionals working in the maternity ward and neonatal unit, and the provision of educational materials for new mothers.

2.2. Intervention programme

2.2.1. Education of midwives and nurses

In the intervention hospital all midwives and nurses working in maternity areas were invited to participate by attending an educational workshop and/or receiving relevant information about the risks of therapeutic sun-exposure. Discussions included suitable treatment options for ailments commonly encountered in early infancy and the post-partum period, such as cracked nipples, mild neonatal jaundice, and nappy rash. Staff were provided with a resource package including: a detailed background paper reflecting current literature; a one page facts sheet outlining essential information; and educational pamphlets to use in discussions with parents.

2.2.2. Resources

Bookmarks containing key messages were included in the free baby sample packs and the Maternal Record book issued to all women giving birth in the intervention hospital. Pamphlets were included in a resource file kept in the bedside drawers in the intervention hospital maternity unit. Framed posters containing the same key messages were displayed in areas within the intervention hospital maternity unit frequented by antenatal and post-partum women. The hanging of these posters was delayed by hospital compliance issues. Only the 67 inpatients interviewed after the posters went on display could be questioned about these resources. The resource development process has been described elsewhere.¹⁵

2.2.3. Education of post-partum women

Two groups of healthy post-partum women who were inpatients in the intervention hospital were approached by the investigators within 1–4 days of birthing. They were invited to participate in a short semi-structured interview and given an information sheet and consent form before being interviewed. The first cross-section of 106 women was recruited in 2002 (3/9/02–1/11/02) before the in-service workshops for the intervention hospital maternity staff commenced. Seven in-service workshops were then conducted (7/5/03–3/12/03) together with 11 individual sessions conducted at different times on different days of the week to maximize staff attendance; 86.8% attended.¹⁵ The second cross-section of 203 women was recruited after the last scheduled workshop.

2.2.4. Effectiveness of the programme

The effectiveness of the programme was assessed by comparing the beliefs about therapeutic sun-exposure of post-partum inpatients recruited from the intervention hospital before and after the maternity staff workshops were conducted.

2.3. Statistical analysis

Numerical variables are presented as mean values and standard deviations (\pm SD) or median values and inter-quartile ranges (IQR) depending on their distribution. Demographic characteristics of post-partum women were compared pre- and post-intervention using unpaired *t*-tests, Wilcoxon–Mann–Whitney–*U* tests, and approximate or exact Chi-square tests. Bivariate comparisons between the intentions of the women to expose themselves or their babies to sunlight pre- and post-intervention were conducted using approximate or exact Chi-square test statistics.

Multivariable logistic regression analyses were conducted to determine whether differences between pre- and post-intervention intentions of mothers to expose themselves or their babies to the sun remained or became significant when adjusted for other predictors and confounding factors. All demographic characteristics described were used in these multivariable analyses. Results of logistic regression analyses are presented as prevalence odds-ratios (POR) together with 95%-confidence intervals (95%-CI). Statistical analysis was conducted using SPSS for Windows, release 16 and STATA for Windows, release 8.

2.4. Ethics approval

Ethical approval was granted by the James Cook University Human Ethics Committee on March 3rd, 2002 (No. H1333).

3. Results

3.1. Demographics of pre- and post-intervention groups (Table 1)

There were 106 pre-intervention women in 2002 (mean age 27.8 ± 5.6 years) and 203 post-intervention women in 2003 (mean age 27.0 ± 5.7 years). A higher percentage of post-intervention (73.9%) than pre-intervention women (54.3%) perceived their skin colour as fair/pale ($p < 0.001$) and had a mother with Caucasian Australasian ancestry (77.2% vs 84.4%; $p = 0.030$) (Table 1). Of the 67 post-intervention women asked about the resources displayed in the maternity ward of the intervention hospital, more than two-thirds (71.6%) reported seeing either the pamphlet or the posters or both.

3.2. Women's intentions to sun-expose themselves or their babies

- (a) *Treat neonatal jaundice*: When asked what they would do if they suspected jaundice in their newborn, more pre-intervention (28.8%) than post-intervention (13.3%) women said they would “sun” their baby ($p < 0.001$), with more post-intervention 81.5% (22/27) than pre-intervention women 46.7% (14/30) suggesting filtered or indirect sunlight.

When responding to another question (agree/disagree/unsure) a higher proportion of pre-intervention (28.6%) than post-intervention (8.9%) women reported an intention to “sun” their child to treat neonatal jaundice ($p < 0.001$; Table 2). Of the 44/48 who agreed, seven had been advised previously to sun a child to treat jaundice, or had obtained such advice from nursing staff ($n = 1$), a doctor ($n = 1$), family or friends ($n = 8$), reading ($n = 4$), or heard it somewhere previously ($n = 4$). The remaining ten did not provide the source of their advice, but specified a preference for indirect or filtered sunlight.

Multivariable logistic regression analysis confirmed that the intention to expose their baby to sunlight to treat neonatal jaundice was significantly lower following the intervention ($p < 0.001$; Table 3).

- (b) *Adapt baby skin to the sun*: More pre-intervention (10.5%) than post-intervention (2.5%) women reported they would

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