Public Health Nursing in the 21st Century: Challenges and Opportunities for Women and Children’s Health

Guest Editors: Sue Peckover, Sophie Mogotlane, Kari Glavin, and Megan Aston
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This special issue focuses upon public health nursing with women and children in the 21st century. There are 6 papers which address a range of topics illustrating some of the opportunities and challenges arising in this area of nursing work from Ireland, Norway, Finland, UK, Canada, and Brazil.

Two papers (A. Clancy et al. and R. Bryars et al.) remind us of how public health nursing varies according to context and population. This is illustrated in a comparative sense in the paper by A. Clancy and colleagues which compares public health nursing models in Ireland and Norway. These two countries have many similarities from a geographic and demographic perspective. Both have similar sized populations, but economically there are vast differences between Ireland and Norway in relation to poverty; most notably, life expectancy is lower and inequalities are higher in Ireland. Nevertheless, both countries have a strong commitment to WHO reforms towards primary care, and public health nurses have been identified as key players in the delivery of primary care services, particularly primary prevention. Families with children living in areas of high deprivation face multiple health and social challenges and this high level of need impacts on the work of health practitioners working in such areas. The paper by R. Bryar and colleagues reports the use of a Delphi approach to identify priority areas for health visiting practice in an area of deprivation in the UK. This process identified a wide spectrum of health and social needs indicative of the level of deprivation in the area and pressures on families with children and is the first stage of a six-stage project which aims to develop a toolkit of resources for evidence-based practice in health visiting.

Public health nursing is often focused on addressing the health needs of “at risk” or marginalized groups, and this is illustrated in different ways in 3 papers which address postnatal depression (K. Glavin and P. Leahy-Warren), child maltreatment (J. Inkilä and colleagues), and maternal substance abuse (N. Letourneau and colleagues). K. Glavin, and P. Leahy-Warren discuss the global prevalence of postnatal depression and how this serious health issue is specifically addressed in Ireland and Norway. Although the health care systems are dramatically different between Ireland and Norway, both countries strive to offer universal services to all new mothers by public health nurses.

Child maltreatment is a global problem and a multi-dimensional phenomenon occurring in all social classes. The paper by J. Inkilä and colleagues depicts interprofessional collaboration associated with the detection of and early intervention in child maltreatment taking place in the family in Finland. The results provide basic knowledge of interprofessional collaboration associated with child maltreatment between the agencies involved in the study. The research evidence can be utilized in an international context when developing collaboration between different fields. Protecting children from exposure to maternal substance abuse is a
public health priority and is addressed in the paper by N. Letourneau and colleagues. Their study examines mothers’ experiences and engagement with a community based methadone treatment programme in Canada. It highlights practical barriers to engagement such as transport and childcare as well as the importance of including child and family-focused interventions in order to strengthen parenting capacity and promote the wellbeing of both mothers and their children.

The paper by C. A. Bonow and colleagues shifts attention towards another aspect of Public Health Nursing. It focuses on occupational health in Brazil and comprehensively addresses issues of occupational health risks in the welding industry generally and specifically as these apply to women. These risks are numerous and include noise, accidents such as burns and explosions, respiratory problems linked to the gases, welding fumes and dust, and back pain and physical exhaustion due to long standing sometimes in abnormal postures. The paper also begins to create an awareness of these health risks and discusses preventive measures such as hand washing and limited exposure in terms of breaks in the day and leave.

The papers in this special issue provide an overview of the range and scope of public health nursing work with women and children. Although similar health issues exist around the world for women and children, public health nurses continue to create and offer programmes and services that are responsive to the unique needs of “at risk” populations in their own countries. The debate and challenge about universal and targeted programs is a common topic in some of the papers and is addressed through different forms of assessment and programming for mothers and families. Accessibility to programmes is another common global theme found throughout the papers. For example, Norway and Ireland have different programs to ensure accessibility for “at risk” mothers, and the methadone clinic in Canada clearly details the challenges of accessibility for clients due to their social circumstances. The importance of well-organized institutional practice models to support the work of public health nurses is another global issue that is shared by our authors. The Delphi model is offered as one way to assist public health nurses to effectively support families experiencing high deprivation, and other authors talk about how an interprofessional collaboration model can be used to address the maltreatment of children. Across all of the papers, it becomes clear that there are multiple roles for public health nurses when working with women and children. The strength of public health nurses is their ability to work with “at risk” populations at personal, programme, and institutional levels within public health units or private businesses. However, ongoing challenges include debates about best practices. The papers presented in this special issue provide up-to-date evidence with regard to how public health nurses are effectively addressing the diverse health needs of women and children around the world.

Megan Aston
Kari Glavin
Sophie Mogotlane
Sue Peckover
Research Article

Risk Perception and Risk Communication for Training Women Apprentice Welders: A Challenge for Public Health Nursing

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This research has aimed to identify the perceptions of women apprentice welders about physical, chemical, biological, and physiological risk factors to which they are exposed and evaluate the identification of health disorders self-reported for women apprentice welders before and after implementation of a nursing socioenvironmental intervention. A quantitative study was performed with 27 women apprentice welders (first phase) and before and after an intervention with 18 women (second phase) in Southern Brazil in 2011. The data were analysed using SPSS 19.0. The participants identified the following risk types: physical (96.2%), chemical (96.2%), physiological (88.8%), and biological (62.9%). The results show a significant difference of the pre- and posttest averages for the musculoskeletal system and a posttest average increase for the integumentary, respiratory, and auditory system. A correlation of the women apprentices’ ages and the identification of health disorders were made. It was understood that the perception of women apprentices regarding a particular set of occupational risks is essential for public health nursing to develop an effective risk communication as a positive tool for teaching and learning.

1. Introduction

This paper discusses the perceptions of women apprentices about the risks they are exposed to during welding activity. It also presents the development of a nursing socioenvironmental intervention as a tool for risk communication for health education of women apprentice welders. In different countries, for example, Nigeria [1], Sri Lanka [2], France [3], Denmark [4], Turkey [5], and Brazil [6], the issue involving the health and safety of welders is being discussed.

The motivation for the proposed research came from a literature review about the theoretical approach of risk perception [7–9]. On this occasion, the researchers observed the coherence and the need to analyse the issue of human risk in different environments, among these the apprenticeship environment, in relation to apprentices, which includes social, cultural, and political aspects in its production and reproduction [10–12]. Specifically, the interest in studying risk perception of apprentice welders is because the belief is held that the apprenticeship process represents a moment for health education, with the capacity of the dissemination of knowledge and the application of technology of public health nursing. In other words, during the apprenticeship, the apprentices should be encouraged to apply the knowledge learned about their health and on the future work environment. Besides this, it is believed that within this apprenticeship process, perceptions can be changed, from the comprehension of scientific knowledge to individual and collective behaviour, which can assist workers to produce healthy work environments. Primarily, the change or the creation of awareness about health, illness, and work can be enhanced in he apprenticeship process with the aim of
The literature regarding apprentice welders shows concern about the achievement of improving welding techniques [15–17]. Specifically, in the area of health, the investigations include genetic disorders, respiratory problems, and exposure to metals. The first research concerned chromosomal aberrations in military apprentice welders in Aberdeen, MD, exposed to oxide ozone. Blood samples were collected from 273 apprentices for a period of 12 weeks. No statistically significant increases in chromosomal aberrations were found [18]. A cohort study aimed to determine the incidence of probable occupational asthma, bronchial obstruction, and hyperresponsiveness among 286 students entering an apprenticeship programme in the welding profession. The incidence of probable occupational asthma was 3% and of bronchial hyperresponsiveness 11.9%, defined as >3.2-fold decrease in the provocative concentration, causing a 20% fall in the forced expiratory volume in one second from baseline to the end of the study. These results show that exposure to gases and welding fumes is associated with changes in respiratory function [19]. However, a study sought to identify neuropsychological effects of low levels of exposure to manganese. Cognitive performance, motor control, and psychological tests were performed and assessed 46 apprentice welders at a local union welding school. Although the levels of manganese exposure were low, neuropsychological effects can become manifest, especially in relation to mood, attention, and fine motor control [20].

A search of the literature showed that there are texts that present apprentice welders as subjects, covering the welding technique and health of the subjects. The improvement of welding techniques contributes to the reduction of accidents during this activity, as it also does regarding possible injuries and accidents as a result of welding activity. However, there were no texts that show risk perception related to the activity of apprentice welders and the concern with the apprenticeship process about health and safety at work, from theories of risk perception and risk communication because of the approaches necessary for system management of risk to human health at work. There were also no texts observed which identify women as subjects of this occupational activity.

According to the theoretical orientation, this research assumed that the notion of risk perception involves two factors: the magnitude of potential loss and the probability of its occurrence [21]. In other words, the existence or not of different risk factors and occupational accidents might explain why people perceive the same risk in very different situations or why the same individual might perceive risk differently, depending on when he or she is asked about it [22].

Risk perception encompasses both personal and work-environment-related ideas and constructions because, to perceive it, you have to believe it [21]. Therefore, the study of apprentice welders’ risk perception is important, as individuals are responsible for the risks perceived in the work environment and that individual might have caused the risk which an individual perceives. This creates the possibility of changes to minimize or even eliminate risk factors related to individual behaviour or even to their own working conditions. One of the processes of interaction to promote the various changes may be the tool of risk communication.

Risk communication is here understood as an interactive process of exchange of information and opinion among individuals, groups, and institutions [23]. Risk communication can also help promote changes in individual and collective behaviour. Risk communication theory and practice may include public participation and conflict resolution. Risk communication, as aforesaid, was used as a tool for the development of a nursing socioenvironmental intervention with apprentice welders. For this study, the results of an intervention with women apprentice welders are described.

Another theoretical orientation is a classification of different risk factors that the apprentice welders are exposed to. Therefore, the Act of 16 June 1999 [24] was used, which provides occupational hygiene and safety standards and the obligations of employers and employees to create a safe work environment, organization of hygiene and safety at the level of the enterprise, institution, and state, procedures for settlement of disputes in this matter, and responsibility for breaches of established standards. In the specific case of apprentice welders, during welding activities they are exposed to various occupational risks generated by chemical, physical, biological, and physiological risk factors.

These factors can create or worsen occupational health disorders. Among some of the health disorders that may be triggered due to welding activity are cited burns on the skin, which can cause skin cancer [25–27], lung cancer [28, 29], stomach cancer [30], coronary heart disease [31], noise-induced hearing loss [32, 33], and cumulative trauma disorders [34].

The physical risk factors that welders are exposed to include noise from welding machines and nonionizing radiation from open welding arcs. Such factors may trigger disturbances related to the auditory system [32, 33] and the integumentary system, such as skin cancer [25–27]. Skin cancer can be related to frequent skin burns suffered by welders [35]. Burns originate from hot metal contact, which become chemical burns. Thus, chemical burns are related to physical risk factors (heat) and chemical risk factors (different chemical compounds present in the metals that come in contact with the skin).

Chemical risk factors still include contact with different metals in a gaseous state. Risk factors from exposure to welding fumes include chemical contact with different metals. Exposure to welding fumes from the burning of these metals can cause respiratory disorders. An example of a harmful compound is stainless steel, the smoke of which can cause acute lung injury and the size of the inhaled particles and exposure time are significant factors in welding, which must be considered in the development of protective strategies [28]. Another example is exposure to chromium. A cohort
study performed with male welders in the period from 1964 to 1984 identified a higher incidence of lung cancer [29].

Besides the respiratory system, exposure to chemicals also exposes welding workers to disturbances in their cardiovascular systems. Research conducted with construction workers, and this included welders, indicated heart rate variability during occupational exposure and also at night, showing that inhaled metal particles during work have an organic influence, specifically causing arrhythmias [31]. Another system that can be damaged due to chemical risk factors is the gastric system. The profession welders are at risk of stomach cancer, due to working in dusty environments [30].

Physiological risk factors include poor posture during welding because workers perform the activity with a flat piece of metal and they must move around the piece to make the weld. This feature demands that the employees remain in an ergonomically incorrect posture in order to obtain a better result of the weld. Furthermore, excessive vibration from the welding machine is associated with back pain [34].

For these reasons, the present study has aimed to identify the perceptions of women apprentice welders about physical, chemical, biological, and physiological risk factors to which they are exposed and evaluate the identification of health disorders self-reported for women apprentice welders before and after implementation of a nursing socioenvironmental intervention.

2. Materials and Methods

2.1. Design. This study consists of two phases. The first phase is a quantitative, exploratory, and descriptive study involving women apprentice welders, conducted in 2011 in Rio Grande (Rio Grande do Sul, Brazil). The second phase consists of a quasi-experimental, nonrandomized study, which was made before and after nursing socioenvironmental intervention as a tool for risk communication for women apprentice welders enrolled in this study, using the results obtained in the exploratory study (first phase), conducted in 2011 in the same region.

This study is part of a larger research project entitled “Health, Risks and Occupational Diseases: An Integrated Study in Different Work Environments” [36]. It was approved by the Research Ethics Committee of the Federal University of Rio Grande (Universidade Federal do Rio Grande—FURG). Women apprentice welders were included in the study after signing an informed consent agreement. The study was conducted using public funds (National Counsel of Technological and Scientific Development—CNPq) and linked to the Laboratory of Socio-environmental Process Studies and Collective Production of Health (LAMSA) research group of the Nursing School of the Federal University of Rio Grande.

2.2. Sample. The sample of subjects, intentional nonprobabilistic, was composed of 27 women apprentice welders (first phase) enrolled in the technical programme for training as welders in Rio Grande, Rio Grande do Sul, Brazil. Women apprentice welders were divided into eleven classes. The total number of apprentice welders was 162. Women apprentices represented 16.6% of the total number of apprentice welders.

For the second phase, consisting of a nursing socioenvironmental intervention as a tool for risk communication, six classes (86 apprentice welders; 18 women apprentices) were invited, all of which participated in the first phase. In addition to the apprentice welders, six members of the research group LAMSA also participated, as mediators of the nursing socioenvironmental intervention. The welding course which the apprentices were doing includes theoretical and practical lessons. The classes in which nursing socioenvironmental intervention activities were applied had already started practical lessons.

2.3. Measures. The first phase of the study was conducted, based on the following question: how do women apprentice welders perceive the risks to which they are exposed? From the theoretical basis assumed in the study, the existence of a relationship between risk perception and identification of health disorders self-reported by women apprentice welders was identified. Data collection was performed in 2011, through a structured interview from a questionnaire, composed of mixed questions—multiple-choice and single-choice.

The structured questionnaire had multiple-choice and single-choice questions corresponding to the following variables: participant characteristics (age, skin colour/ethnic origin, level of schooling, and marital status); time of experience in welding; risk perception among apprentice welders (the identification of chemical, physical, biological, and physiological risk factors).

Upon the completion of the first phase of the research, the authors organized a nursing socioenvironmental intervention in the study group (second phase). The results of the first phase were used to develop risk communication concerning the risk factors of the work environment as an apprenticeship tool to help apprentice welders for the promotion of individual and collective health in the workplace. Only data from nursing socioenvironmental intervention with women apprentice welders will be presented in this study.

After analysing data from the first phase, the issues to be developed during the nursing socioenvironmental intervention with apprentice welders were organized. Six apprenticeship workshops were conducted, each with a group of apprentice welders. The time used for planning was 40 hours. Four hours were allocated for holding each apprenticeship workshop, making a total of 24 hours. The apprenticeship workshops took place in the theoretical room of the institution.

This practice also included the Health Promotion in Different Work Environments Programme (HPDWE) [37, 38] of LAMSA, the School of Nursing, the Federal University of Rio Grande, RS, Brazil. The HPDWE consists of a set of coordinated actions and continuous shaft in promoting social and environmental health in different work environments, the environments of which are included in the study group’s academic LAMSA.

The nursing socioenvironmental intervention was developed, based on the risk communication concept [7–9, 23, 39].
The content (message) about the nature of risk was developed through the classification of risk factors (physical, chemical, biological, and physiological) and health disorders, due to exposure to these risk factors, based on the Occupational Safety and Health Act of 16 June 1999 [24] of the International Labour Organization (ILO).

Physiological systems were approached in the nursing socioenvironmental intervention in the following order: integumentary, respiratory, cardiovascular, auditory, musculoskeletal, and gastric. Anatomic-physiological systems, risk factors present in welding activity, and health recommendations for apprentice welders were presented to the apprentice welders.

The nursing socioenvironmental intervention used the following steps: (1) presentation of the study and research group and the signing of an informed consent agreement; (2) completion of a pretest questionnaire; (3) implementation of the nursing socioenvironmental intervention; (4) completion of a posttest questionnaire (Figure 1). The last step always occurred on the last day of the welding course. During the nursing socioenvironmental intervention it was possible to relate risk factors that the apprentice welders are exposed to and physiological systems which are affected by these.

To trigger the development of communication (first step) with the apprentices who were participating in the intervention, the following question was used: what personal protective device is used during welding activity? The responses were expressed on a whiteboard for all the apprentices to see. The answers were welding cap, welding apron, welding coat, welding boots, earplugs, welding trousers, welding goggles, welding mask, breathing mask with filter, and welding gloves. This promoted the apprentices to make comparisons, considerations, and suggestions on the subject. There were comparisons about the personal protective device used by the apprentices because some only use the welding coat and trousers (provided by the technical programme for training) and others use items not included in the personal protective device supplied by the technical programme for training, for example, the welding apron (individual purchase), in order to increase protection. Moreover, some apprentices do not use the breathing mask with filter because it is uncomfortable, which generated discussion among the participants of the apprenticeship workshops.

To continue the process of risk communication, visualization of personal protective devices used to perform welding activity made it possible to show the different body systems (integumentary, respiratory, and auditory) which are protected by personal protective devices. Besides these, the gastric, cardiovascular, and musculoskeletal systems were included, which, despite not being protected by personal protective devices, require attention during welding activity.

During the presentation of the integumentary system, concerns about the physical risk factor, nonionizing radiation, and chemical risk factors, due to frequent skin contact with metals, were focused upon. Apprentices were asked about the composition of the wire used to perform the welding. They use a wire called E71T-1, which is composed of carbon, manganese, silicon, phosphorus, and sulphur. It was emphasized that every time the apprentices have skin contact, either by touching the metal or through weld splash, they are in contact with heavy metals and minerals present in the wire, especially when the skin is hit by a weld splash because, due to its elevated temperature, the splash causes chemical burns. It was recommended to use sunscreen, especially during welding activity and when exposed to solar radiation, and also to use welding gloves during activity followed by proper hand washing in order to minimize contact with metals.

To explain the proper hand washing method, a poster was devised by LAMSA. During the explanation the gastric system was discussed because the apprentice welders can ingest metals when they eat if proper sanitation of their hands is not performed after working with the solder.

Concerning the respiratory system, chemical risk factors were dealt with which apprentices are exposed to because they breathe the fumes resulting from the burning of metals during welding activity. The composition of the wire E71T-1 was again referred to explore the importance of a breathing mask with filter, a respiratory mask with filter being provided by the technical programme for training, which protects against dust and fumes from welding. It is important to use a breathing mask with filter under the welding mask because without it the welders will be inhaling dust and fumes from the welding process. Besides the chemical compounds present in fume welding, apprentices are also in contact with gases (acetylene and carbon dioxide) that are released during the opening of the flame. Unfortunately, the mask provided does not protect against inhalation of gases. For these reasons, it was recommended that apprentices do not remain in the environment of the welding practice rooms unnecessarily and/or without the protection of the respiratory mask with filter. Physical activities were recommended that promote breathing, such as running races, in order to encourage gas exchange, which also promotes the health of the cardiovascular system.

For the auditory system approach the physical risk factor was noise. The apprentices were informed about exposure to 89-90 dB from the welding machine during practical activities. During the practical classes of each class about 14 welding machines are used. The noise is caused by exhaust...
fans, which exceed the limit of 115 dB, which is the imposed limit for occupational exposure without proper protection, according to Regulatory Standard 15 from Brazil [40], which provides tolerance limits for continuous and intermittent noise. In addition, most apprentices use earplugs, such as headphones, which, unlike earmuffs, offer less protection than earplugs. Apprentices were questioned on how they perform ear cleaning during the activities and practices of welding and on shared earplugs among apprentices. Some apprentices reported not performing ear cleaning and that they never lent earplugs. Daily cleaning with soap and water for earplugs was recommended and advice was reinforced about not lending earplugs because of the ease of transmission of bacteria by this route.

For the musculoskeletal system, the following physiological risk factors were approached: performing repetitive movements, staying in the same posture for long periods and sometimes incorrect posture, and risk factors which apprentice welders are exposed to. To minimize exposure to these risk factors, the apprentices were asked to perform stretching exercises. During the exercises, apprentices were instructed to carry out the activity of stretching before and after welding practice and at intervals of 10 minutes after 50 minutes of welding activity. Physiological systems, risk factors, and health effects during welding activity are presented in Table 1.

In addition to these recommendations, after exposure of the systems, the following general recommendations were made: prioritize foods rich in iron and calcium to promote the excretion of manganese, prioritize foods rich in vitamin C to facilitate iron absorption, and prioritize food rich in fiber to facilitate removal of manganese and other metals by feces, since only some of the manganese is eliminated in the urine.

To continue risk communication, the results of this research were presented. This approach focused on reestablishing the perception of risk factors (physical, chemical, biological and physiological) to which apprentices are exposed and health disorders related to welding activity. The presentation was concluded with the delivery of explanatory posters, which were placed in the welding practice rooms, so that by looking at the poster the implementation of protective measures during welding activity and the minimization of exposure to risk factors would be stimulated.

The pre- and posttest questionnaire consisted of 41 variables related to identification of health disorders: musculoskeletal (15 items), integumentary (12 items), auditory (4 items), gastric (4 items), respiratory (3 items), and cardiovascular (3 items). The answers were given on a Likert Scale of five points, with the lowest being 0 (never feel/felt it) and the highest 4 (always feel/felt it). Thus, the maximum average of each block of questions was four.

2.4. Data Analysis. The Statistical Package for Social Sciences (SPSS) software Version 19.0 was used to organize and describe analysis of the data (first phase). Data from nursing socioenvironmental intervention (second phase) was presented using percentage, mean, and standard deviation (±SD). For paired samples analysis, were used student t test (P < 0.05). The Spearman correlation was used to analyze the intensity of the relation between the variable age, time of experience in welding, and self-reported health disorders by women apprentice welders before and after nursing socioenvironmental intervention.

3. Results

The sample included 27 women apprentices enrolled on the technical programme for training as welders in Rio Grande, Rio Grande do Sul, Brazil. Their ages ranged from 18 to 56 years, with an average of 30.26 years (±8.39); 11 (40.7%) were ethnically white and 11 (40.7%) ethnically black; 19 (70.4%) had at least secondary school and 12 (44.4%) had no children (Table 2). Regarding time of experience in welding, 20 (74.1%) had none, 6 (22.2%) had experience, and one (3.7%) did not answer the question on experience. The average of time of experience ranged from 4 to 24 months, with a mean of 10.67 months (±7.52).

The results of the questionnaire on risk perception in the welding apprenticeship environment showed that 26 (96.2%) women apprentice welders identified physical risks, 26 (92.2%) identified chemical risks, 24 (88.8%) physiological risks and 17 (62.9%) biological risks. Among the risk factors identified, the most frequent was the heat during welding activity and the presence of gases, cited by 21 (77.8%) women apprentice welders (Table 3).

Table 4 presents mean (±SD) identifying organic disorders in different times (before, after, and in relation to between before and after nursing socioenvironmental intervention). The musculoskeletal and integumentary systems had the highest averages, demonstrating greater identification of women apprentice welders about health disorders in these systems.

Comparing the means before and after nursing socioenvironmental intervention, it can be seen that there was an increase of the auditory, musculoskeletal, respiratory, and integumentary means. This increase of averages indicates that there was identification of disorders in these systems after nursing socioenvironmental intervention. The evaluation after the nursing socioenvironmental intervention shows a decrease in the mean cardiovascular and gastric systems.

<table>
<thead>
<tr>
<th>Physiological systems</th>
<th>Risk factor</th>
<th>Health effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integumentary</td>
<td>Physical and chemical</td>
<td>Chemical burns, Skin cancer</td>
</tr>
<tr>
<td>Gastric</td>
<td>Chemical</td>
<td>Stomach cancer, Lung cancer</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Chemical</td>
<td>Pneumonia, Occupational asthma</td>
</tr>
<tr>
<td>Auditory</td>
<td>Physical</td>
<td>Noise-induced hearing loss</td>
</tr>
<tr>
<td>Musculoskeletal</td>
<td>Physiological</td>
<td>Work-related musculoskeletal disorders</td>
</tr>
<tr>
<td>Cardiac</td>
<td>Chemical</td>
<td>Cardiac dysrhythmia</td>
</tr>
</tbody>
</table>

Table 1: Physiological systems, risk factors, and health effects during welding activity.
Table 2: Demographic characteristics of study subjects (n = 27).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>n</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>19</td>
<td>70.4</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td>Separated</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Skin colour/ethnic origin</td>
<td>White</td>
<td>11</td>
<td>40.7</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>11</td>
<td>40.7</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>Schooling</td>
<td>Elementary school, incomplete</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Elementary school</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>Secondary school, incomplete</td>
<td>5</td>
<td>18.5</td>
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<td></td>
<td>Secondary school</td>
<td>14</td>
<td>51.9</td>
</tr>
<tr>
<td></td>
<td>Higher education, incomplete</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>Higher education</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Postgraduate education, incomplete</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Number of children</td>
<td>None</td>
<td>12</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td>One</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td>Two</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>Three</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td></td>
<td>Four</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>More than four</td>
<td>1</td>
<td>3.7</td>
</tr>
</tbody>
</table>

which points to a lower reference of women apprentice welders to disorders related to these systems.

The *t*-test detected a higher difference between means before and after nursing socioenvironmental intervention in the musculoskeletal system (*P* < 0.05). For the other systems there were no significant differences.

Spearman correlation between age, time of experience, and self-reported health disorders by women apprentice welders revealed a negative correlation between age of women apprentices welders and the average after intervention for the gastric system (*P* < 0.01); that is, the lower the age, the higher the average during the valuations of such systems. The pattern changes when the correlation between organ systems is analysed, indicating among most of them positive and significant correlation. Time of experience was not correlated with any variable.

Table 3: Perception of women apprentice welders about physical, chemical, biological, and physiological risk factors (n = 27).

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>n</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat</td>
<td>21</td>
<td>77.8</td>
</tr>
<tr>
<td>Noise</td>
<td>19</td>
<td>70.4</td>
</tr>
<tr>
<td>Ionizing radiation</td>
<td>13</td>
<td>48.1</td>
</tr>
<tr>
<td>Nonionizing radiation</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>Abnormal pressures</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>Moisture</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>Vibrations</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td>Cold</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Chemical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gases</td>
<td>21</td>
<td>77.8</td>
</tr>
<tr>
<td>Dust</td>
<td>16</td>
<td>59.3</td>
</tr>
<tr>
<td>Chemical products</td>
<td>15</td>
<td>55.6</td>
</tr>
<tr>
<td>Fumes</td>
<td>8</td>
<td>29.6</td>
</tr>
<tr>
<td>Vapours</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>Mist</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Fog</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Biological</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteria</td>
<td>8</td>
<td>29.6</td>
</tr>
<tr>
<td>Fungi</td>
<td>8</td>
<td>29.6</td>
</tr>
<tr>
<td>Bacilli</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>Virus</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Parasites</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Protozoa</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Physiological</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor posture</td>
<td>17</td>
<td>63.0</td>
</tr>
<tr>
<td>Repetitive strain</td>
<td>12</td>
<td>44.4</td>
</tr>
<tr>
<td>Inadequate ventilation</td>
<td>10</td>
<td>37.0</td>
</tr>
<tr>
<td>Use of inappropriate equipment</td>
<td>9</td>
<td>33.3</td>
</tr>
<tr>
<td>Rhythm of overwork</td>
<td>7</td>
<td>25.9</td>
</tr>
<tr>
<td>Machines and/or inadequate equipment</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>Requirement productivity</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td>Inadequate lighting</td>
<td>2</td>
<td>7.4</td>
</tr>
</tbody>
</table>

4. Discussion

This study contributes to an understanding of the perception of risk factors and identification of health disorders self-reported by women apprentice welders. The identification of the risk factors perception contributes to health education for risk communication, as in the case of nursing socioenvironmental intervention. Health education is an important strategy to prevent diseases [14].

As regards the perception of risk factors that were identified, risks were reported in decreasing order: physical, chemical, physiological, and biological. Regarding health disorders self-reported by women apprentice welders, the average for before and after nursing socioenvironmental intervention was higher for health disorders related to the musculoskeletal and integumentary systems, indicating greater identification of women apprentice welders in relation to welding work and health disorders. Furthermore, the greater identification of musculoskeletal and integumentary disorders is associated with more perceived risk factors (physical, chemical, and physiological).

It should be emphasized that with the *t*-test the musculoskeletal system showed significant difference. These findings are similar to those found in the literature on welding-work-related disorders, which present the welders as a group at risk for musculoskeletal and integumentary disorders [25–27, 34].
The physiological risk was reported by 88.8% of women apprentice welders, showing mainly poor posture and repetitive stress. The postures, repetitive movements, and constant vibration of the welding machines are examples of wear suffered by the musculoskeletal system. Most activities in welding require a variety of movements, such as bending, stretching, and long periods of standing, and, to perform these activities, specific muscle groups are used, such as the lumbar and scapular muscles, resulting in overload and increase of the risk of disorders [41]. In addition, physiological risk factors are present in other work environments, such as temporary dock work, which can trigger work-related musculoskeletal disorders [42].

Studies [43, 44] were performed because of concern about manual labour in relation to the constant vibration of the tools of the welders during the welding process. The investigation found that the tools exceed the exposure limits when operated for more than 8 hours. Research [34] performed with different workers showed that, specifically for welders, vibration may be associated with back pain.

It is important to highlight that musculoskeletal disorders associated with welding activity may occur due to the need for constant physical effort of women apprentices and future workers. To be specific, a significant difference to the musculoskeletal system can be explained by the fact that the pains arising from disturbances in this system presented the group exposed to UV radiation at work, as in the example of sequential bilateral ocular melanoma [27] situation in which sequential bilateral ocular melanoma is reported in an electric arc welder with 15 years of work. The authors associate the presented patient’s predisposition with cancer as being due to his occupational activity. A case-control study [47] conducted with people diagnosed with ocular melanoma showed no increased risk of this cancer in the groups exposed to UV radiation at work, as in the example of welders.

Concerning physical risks, they were identified by 96.2% of the study participants. This is due to the constant exposure of women apprentice welders to weld spatter and hot metal objects, according to the activity they perform. This frequent exposure can cause a greater number of disorders related to the integumentary system. The main risk identified was physical heat for 77.8% of the participants. The heat self-reported by women welding apprentices arises from the nonionizing radiation produced by welding activity. More specifically, heat is produced during the opening of the electric arc (Figure 2), which consists of an electric discharge. Study findings show that the intensity and wavelength of nonionizing radiation produced would depend on many factors, such as the type of welding process, welding parameters, and the composition of metals, fluxes, and any coatings that may be on the base material. Moreover, the radiation exposure time was considered compatible with each 8 hour exposure within a 24-hour period. Therefore, two exposures of 5 minutes during a workday can be considered as a single 10-minute exposure. The research results show that the minimum safe distance for 1 minute is 32 cm [35].

Another study [46] conducted to quantify the risk of arc eye during welding activity showed that the maximum exposure without protection is around 0.47 to 4.36 seconds. For this reason, it is important that welders avoid direct exposure to light to initiate the welding arc. Moreover, they must use personal protective devices appropriate for the eyes and for the type of weld.

The integumentary system is mainly exposed to ultraviolet (UV) radiation coming from the open arc welding activity. Occupational exposure to UV increases the risk of skin cancer [24–26]. An example is presented in a case study [27] situation in which sequential bilateral ocular melanoma is reported in an electric arc welder with 15 years of work. The authors associate the presented patient’s predisposition with cancer as being due to his occupational activity. A case-control study [47] conducted with people diagnosed with ocular melanoma showed no increased risk of this cancer in the groups exposed to UV radiation at work, as in the example of welders.

Examples of integumentary disorders that may be caused by physical and chemical risks present in welder’s activity are occupational burns. Occupational burns are divided into three categories. Thermal burns include events that result from high levels of heat caused by explosions, flame, radiant heat, and direct contact with hot surfaces. Electric injuries result from electrical explosions, flashes, or direct contact with an electrical current. Chemical burns result from the reaction of biological tissue with chemical materials [48].

Specifically with apprentice welders, burns that can occur include thermal burns and chemical burns. There is a study which describes the occurrence of work-related injuries from thermal, electrical, and chemical burns among electric utility workers, among these the welders. Welders (not a common
It is understood that per 10,000 employee-years) and for thermal/heat burns (40.87 per 10,000 employee-years) [49]. Another important issue is related to exposure to radiation from welding machines. The effects of exposure to such radiation were tested on male and female welders who are parents and who are exposed to magnetic fields. The investigation was performed in order to detect an increased risk of cancer in the children of these workers. The association between these factors has not been proven [50]. Likewise, an experimental study [51] conducted with rats during the gestation period involving exposure to radiation showed that although there was no teratogenicity there were problems of poor bone formation and low birth weight.

The findings also suggest that the perception of chemical risk identified by 96.2% of the participants and the identification of health disorders involving this risk, for example, respiratory and integumentary disorders, increased after nursing socioenvironmental intervention. This risk perception, related to the chemical risk and identification of health disorders related to the chemical risk, is related to the raw material that the apprentices handle during welding activity, for example, the hot metal [52]. The metals which apprentice welders are in contact with include aluminum [53], stainless steel [29], cadmium [54], chromium [55], lead [56], copper [57], manganese [57], molybdenum [57], and nickel [56]. These chemicals may generate hazardous fumes during welding activity. According to the International Labour Organization [52], these metals are related to risk factors and the occurrence of health disorders, when the welders are hit by weld splash or hot metal particles or inhale metal fumes (respiratory health disorders).

Among the chemical risks, 77.8% of women apprentice welders recognized the gases with which they deal during welding activity as risk factors, 59.3% identified the dust present in the apprenticeship environment, and 29.6% the fumes from welding. Research indicates that the welding fumes from the chemical compound, stainless steel, can cause acute lung injury and the size of the inhaled particles and exposure time are significant factors in the welding, which must be considered in the development of protective strategies [28]. Lung function and respiratory symptoms in welders were therefore investigated in a case-control study [58], noting significantly higher prevalence of respiratory symptoms (dyspnea and secretion) in welders. The study suggests that the welders are at risk of developing respiratory symptoms and decreased lung function, although the concentrations of metal fumes were lower than the recommended limit by the American Conference of Industrial Hygienists (ACGIH).

Another important pathology in welders is lung cancer. A cohort [29] conducted with male welders, from 1964 to 1984 showed that the incidence rate of lung cancer was higher. An important chemical compound, carcinogen, found in welding activity, is chromium. Studies suggest that chronic occupational exposure during welding activity can raise levels of damage to genetic material and inhibit the repair of the same [55, 59].

A longitudinal study of apprentice welders showed a significant association between welding-related metal fume and respiratory symptom fever as well as a decrease in lung function values after 15 months in welding school [19].

Analysing the average of the remaining systems obtained in the pre- and posttest, it was noted that there was an increase in the average posttest for the auditory and respiratory systems and a decrease in the average for the cardiovascular and gastric systems. It can therefore be considered that the provision of a nursing socioenvironmental intervention for women apprentice assists in the dissemination of knowledge to identify health disorders related to welding work.

By identifying these results, the conclusion will be the idea that risk communication strategies, as is the case with nursing socioenvironmental intervention, enable different groups to identify sources of information and knowledge, which are specific instruments in the role of health protectors of apprentices and future workers, as well as their colleagues. It should also be noted that by relating characteristics of the work and the conditions of exposure to different risks related to possible disorder, the apprentice can become proactive in the protection of her health.

A study with different groups of community residents in the United States but with similar exposure problems examined the presence of manganese in the air and identified the community perception of the local air quality and the effects of manganese exposure on health. Through this identification, the authors used the risk communication strategy for teaching/learning self-care for this group. The results of risk communication showed a strong link with the academic community responsible for this area. However, such a result was possible due to the type of risk communication established, which visualized the needs and experiences of the community, integrating this knowledge with research protocols [60]. Similar studies with female welding apprentices were not found.

The correlation between age and the results of the posttest for the gastric system indicates that the youngest women apprentice welders identified more disorders related to the systems than apprentices who were older. It is understood
that the opportunity to relate the health disorders with welding activity during the nursing socioenvironmental intervention provided by nurses was seized by the younger welders. This result was also evidenced in research that sought to probe the impact of an online learning theoretical course of welding and electrics, where younger learners had higher levels of compliance [61]. The condition of apprehending knowledge of younger people may be a factor that contributes to this correlation. Older apprentices have formed concepts about certain subjects, which can trigger greater difficulty for apprehending different knowledge from that which has already been acquired.

5. Conclusions

In conclusion, women apprentice welders realize that they are exposed to risk factors, especially chemical and physical risk factors related to the fact that their workplace is particularly dangerous. Results showed that the nursing socioenvironmental intervention provided information about health disorders related to welding activity for the auditory, cardiac, gastric, musculoskeletal, respiratory, and integumentary systems. Such information enabled the women apprentice welders to evaluate information and through this self-report health disorders. Analysis of the mean pre- and posttest of the musculoskeletal system allowed for observation of the influence of nursing socioenvironmental intervention on the apprehension of women apprentices of health disorders knowledge related to welding activity.

In order to minimize musculoskeletal health disorders related to welding activity, the recommendation is made that women apprentices should perform stretching activities before and after work and must perform ten-minute breaks every 50 minutes of work. Besides musculoskeletal disorders, other disorders, for example, integumentary disorders, such as skin cancer, can be prevented through simple measures, as through the use of sunscreen during welding activity; respiratory, gastric, and cardiac disorders, such as lung and stomach cancer and cardiac arrhythmias, can be prevented by the use of a respirator, doing physical activities in order to facilitate gas exchange, and washing hands after working with weld to prevent ingestion of metals; and auditory disorders, such as noise-induced hearing loss, can be avoided through the use of hearing protection during the whole period of working with weld.

It is believed that risk communication, through a process of health education, can modify individual behaviour because it is a process in which apprentices perceive and multiply knowledge in their work/apprenticeship environment and thus interfere with collective work conditions. It is understood that the perception of women apprentices regarding a particular set of occupational risks is essential for public health nursing to develop an effective risk communication as a positive tool for health education.

References


NRIS—Atividades e Operações Insalubres, Ministério do Trabalho e do Emprego, Brasília, Brazil, 2011.


Research Article

Using the Delphi Approach to Identify Priority Areas for Health Visiting Practice in an Area of Deprivation

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1. Introduction

Development of methods to enable practitioners to use evidence in practice has had increasing focus within the evidence-based health care movement and in all areas of the NHS, with the aim of delivering high-quality care [1]. Prior to the development of interventions in an area of practice, there needs to be an understanding of the priorities for practice in that particular field [2]. This paper reports on the first stage of a six-stage project which aims to develop a toolkit of resources for evidence-based practice in health visiting, in an inner city area, characterised by high levels of deprivation and a high under 25s population. The first stage involved identification of the priority areas of practice for health visitors (HVs) working with families under the age of five years.

The project is being undertaken in Tower Hamlets, an inner city borough in east London, UK. Tower Hamlets is a densely populated area of eight square miles characterised by multiple aspects of deprivation which impact the health and wellbeing of the population. The borough is divided into 17 administrative wards and 16 of these are in 20% of most deprived wards in England and 12 are in the lowest 5% [3]. Of the approximate 250,000 population, 50,000 are under the age of 16 years and of these 25,000 are living in poverty; this is the highest level of child poverty in England [4]. The population is highly mobile and contains a large number of migrants with a population made up of 50% White, 36% Bangladeshi, 7% Black, 3% Chinese, 2% Indian, and 4% other. The joint strategic needs assessment identifies that the effects of deprivation are evident in children in the area who are under the age of five years. To address these effects, it is recommended that the local Health and Wellbeing Board needs to consider that “good education, access to childcare, and support to families are evidence-based interventions to give Tower Hamlets infants the best start in life and mitigate these impacts” (page 21) [3].
2. Health Visiting

Health visitors are qualified nurses or midwives who undertake an additional qualification at either BSc or MSc levels to register with the NMC as specialist community public health nurses (HV). The roots of health visiting lie in the concern in the 19th century to improve the health and living conditions of families living in poverty in the UK [5, 6]. HVs are part of the front line public health workforce, visiting every family who has a new baby, focusing on prevention and promotion of health [7]. Through this focus, HVs contribute to reducing long-term health inequalities and prevention of long-term conditions as well as supporting parents with their immediate parenting concerns and working to identify and prevent child safeguarding issues.

The role of HV services was clearly outlined in the Healthy Child Programme [7] and Healthy Lives, brighter futures—the strategy for children and young people’s health [8]. These documents emphasise intervention during the early years of a child’s life, identification, and management of risk, as well as universal service provision (care provided to all families with young children) with additional targeted and specialist service provision offered to families in most need. Recent high profile reports [9–15] highlight a critical role for HVs in delivering evidence-based early, preventative intervention programmes for children, young people and families, particularly for those at risk or with identified health and social needs.

Health visitors are pivotal in improving public health outcomes for children and families [8, 16, 17]. They work in partnership with parents and voluntary and statutory agencies and use social models of assessment. Supporting families in complex situations they identify their strengths and resilience working with them to deliver interventions which promote health and wellbeing, tackle inequalities, prevent illness, and improve social inclusion [18]. High rates of child poverty and social disadvantage greatly increase health practitioners’ workloads [19], but it has been suggested that traditionally health visiting services were not optimally planned and offered to tackle social disadvantage [20]. Thus, there is a need for more effective use of HVs’ skills to support population needs arising from social disadvantage.

Due to a combination of factors, the numbers of HVs in practice in the UK dropped significantly from the 1990s. During this time, there was a considerable increase in the evidence concerning the importance of the early years of a child’s life on their intellectual and social development [9, 10]. Since the election of the UK coalition government in 2010, there has been a renewed interest in the role of HVs in supporting parents to enable the best outcomes for their young children. In 2011 the HV Implementation Plan: A Call to Action [17] was launched in England setting out a new model of service delivery and a plan to increase the numbers of HVs by 4,200 by March 2015. The HV Implementation Plan [17] outlines four levels of service delivery by health visitors: universal, universal plus, universal partnership plus, and the community levels, and the Department of Health commissioned the National Nursing Research Unit, King’s College London, to examine the evidence demonstrating health visiting effectiveness within these service levels [21]. The report provides a review of the evidence relating to areas of health visiting practice including support for breastfeeding, support for parents and parenting, work with families experiencing domestic violence, and multiagency working. The review shows that in some areas of practice, for example, the role of the health visitor in supporting continuation of breastfeeding, there is strong, robust research evidence of effectiveness of health visitors, but in many other areas the evidence base is weak; that is, there is a lack of research in many of the areas of health visiting practice. However, in relation to the early intervention work that health visitors are undertaking with families, there is an extensive evidence base including the recent reports from the WAVE Trust [22, 23] which summarise the evidence on the importance of early intervention for the long-term wellbeing and health of infants, children, and families. The question underpinning the present study was: to what extent are health visitors using the currently available evidence in their work with families?

To support the expansion in the numbers of health visitors The Burdett Trust for Nursing launched a funding round to promote innovative developments to empower HVs in practice. Funding was granted by The Burdett Trust for Nursing to develop a toolkit to support HV practice in an inner city area. HVs who work in deprived inner city areas (such as Tower Hamlets, East London), with high levels of mobility, vulnerability, and safeguarding concerns, are constantly making difficult decisions about how they prioritise their workloads. They are faced with limited workload capacity due to large and growing under 5 population and caseloads which have disproportionate numbers of vulnerable families, or families with child protection concerns. As a result, it is hard for HVs to focus on the core universal health visiting role which aims to improve the health of the whole population by intervening early in the lives of children and families to prevent ill health or deterioration.

3. Evidence-Based Practice

As Nursing and Midwifery Council registered nurses, HVs are required to ensure that they provide safe, effective, and evidence-based care [24]. Evidence-based practice (EBP) is a means of ensuring that effective and safe interventions are delivered [25], but EBP does not just refer to using research in practice [26] since research is only one form of evidence used by nurses [27]. Nurses also use information from their local environment, patient, and clinical experience to inform their evidence-based decision making [28].

Currently there is no universal agreement about how research for EBP is used, applied, or evaluated in practice [29]; however, it has been suggested that managerial support, colleague support and education can encourage the use of EBP [30, 31]. Nurses, working in contexts where effective practice is promoted by leadership and support, report significantly more research utilisation, staff development and lower rates of patient adverse events than nurses working in less positive contexts [32]. It is suggested, therefore, that leadership, clinical support, and reflective practice make EBP
“thrive” [33]. Erodt [2] provides a framework in which the utilisation of EBP may be considered. He describes three dimensions which interact to inform practice as follows:

(i) the first is concerned with the analysis of needs in practice including assessment, planning, and implementation;

(ii) the second is concerned with the context of practice, for example, cultural aspects, deprivation;

(iii) the third is concerned with how the professionals think which is affected by their experience and the time available.

The present project is concerned with examination and intervention in each of these areas with the aim of enabling HVs in Tower Hamlets to incorporate EBP into their work with families with significant need. HVs have limited time to access research evidence, and therefore the project aims to develop a resource or toolkit which would provide the HVs with easily accessible resources to support their practice. Research on barriers to research utilisation indicates that lack of time is the key barrier to use of research by practitioners [30], and, where toolkits of resources have been put in place improved patient outcomes have been achieved [34]. However, the content of the “toolkit” has evolved over the project reflecting the reality of introducing change in practice [35] so that the final toolkit will, in addition to evidence for practice, contain other resources supporting, for example, communication, multiagency working, and teamwork.

Development of the toolkit has been led by a six-cycle process of research making use of an action research approach [36] as follows:

(i) 1st cycle is identification of priority needs and development of consensus among stakeholders about the top priority health needs to be addressed through the EARLY toolkit by HVs in Tower Hamlets.

(ii) 2nd cycle is identification and synthesis of evidence-based material that will provide best evidence to support service delivery regarding the top priority health needs.

(iii) 3rd cycle is identification of past and current HV activity regarding the top priority issues.

(iv) 4th cycle is development of the EARLY toolkit for the priority areas and HV training in use of the tools.

(v) 5th cycle is an evaluation of changes in practice (in comparison with data collected in cycle 3) after implementation of the EARLY toolkit.

(vi) 6th cycle is embedding of EARLY toolkit outcomes into information systems in order to support future audit of activity for the top priority issues.

The project was submitted to the Research Office of Barts Health NHS Trust and on the advice of the Trust, it was registered with the Clinical Effectiveness Unit in the Trust as a service development project. The project is overseen by a steering group chaired by the Head of Nursing Community Health Services (KP) which meets every two months. The steering group includes representatives from public health, the safeguarding children’s team, health visiting in the two pilot localities in which the work is being undertaken, the children’s centres lead and the project manager (CD), and the university research team (RB, SA-A, JC). The steering group reports to the project sponsor in the Trust. An operational group led by the project manager and the university researchers meets at least every fortnight.

4. Analysis of Needs in Practice

The overall aim of the project is to develop an EBP toolkit that will inform practice and benchmark safe and effective early years’ HV interventions, thereby supporting service development and audit. It was proposed that the toolkit would contain resources to support delivery of EBP by HVs in priority areas. The first step (cycle 1) was to identify the most important issues or top priority needs that the HV team should address, to prioritise the development of the resources.

Various methods may be used to identify priorities in practice including reviewing the literature, examining the local joint strategic needs assessment and public health data, and consultation methods. As the long-term aim of this project was to develop resources for HVs to use in their practice, it was important to involve HVs and other service providers who they work with in the identification of priorities. To do this, the project made use of a modified Delphi process to identify priority issues in HV practice in an inner city area.

5. Modified Delphi

Delphi is a structured process that uses a series of repeated rounds to gather information from a panel of experts. The aim of using Delphi is “to achieve agreement among a group of experts on a certain issue where none previously existed.” [37, page 4]. Each round summarises information presented in the previous round which is then presented again to stakeholders for prioritisation in order to establish group agreement [38]. Delphi is usually undertaken in 3 rounds conducted by post and agreement among panel members is achieved by providing each member with feedback and averaged information from the previous round [39, 40].

The technique was developed in the 1950s as a means to facilitate the engagement of experts as a group to examine complex defence problems in the USA [41]. These authors provide a general definition but stress, as do others, that Delphi is an approach rather than a fixed method: “Delphi may be characterised as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole to deal with a complex problem” [41, page 3]. Delphi may be used for two main purposes: priority setting or gaining consensus on an issue.

Keeney et al. [37] identify 11 different types of Delphi which have emerged over time from the original or classical Delphi. The modified Delphi they describe has a first round
The project was initially diverse, ranging from an HV team member to manager in a children’s centre (see Table 1). The project was planned to run for one year which meant that a very tight timetable for the Delphi process was followed resulting in a short period for recruitment of participants for the Delphi process from the start of the project in mid-May 2012 to the focus group in early June. This resulted in recruitment of only one parent but 21 parents have been involved in later stages of the project. Participants were asked to agree to participate in all three rounds of the Delphi, and at the beginning of Round 1 they were asked to sign participation consent form.

7. Participants

Purposeful samples of people from health visiting and the stakeholder groups who work with the same population of families with children under 5 years were invited by KP to participate in the three rounds. Information was sent to potential participants outlining the aims of the project and detailing what was required from them. Health visitors in the two localities, of four, in which the project was to be piloted were invited to attend. The two localities reflect the widespread nature of deprivation in the borough and the ethnic mix of the population. The participants were service representatives from across the borough; their invitation and involvement in the process were to ensure that participants were people who had the commitment to the process and shared a level of expertise. For example, participants were diverse, ranging from an HV team member to manager in a children’s centre (see Table 1). The project was initially involving the expert group in face-to-face interviews or focus groups. In the case of the present study, the aim was to identify priorities to be addressed through the EBP toolkit. A modified Delphi approach was used in which the first round comprised focus groups, the second individual responses but in a group setting and the third was conducted via email.

6. Method

The aim of the first cycle was to identify, explore, prioritise, and gain stakeholders’ consensus about the priority health needs that HVs will address through the EBP toolkit, making use of a three-round Delphi approach.

7.1. Round 1. The participants were invited to attend a one-day event in June 2012 held in a Trust venue during which the aim was to generate discussion and collect qualitative data about the priority areas. Refreshments and lunch were provided during the day. The day started with a presentation on the project, and then participants were formed into five focus groups each led by a facilitator. Each focus group had 4–6 participants, an appropriate sample size for a focus group [42]. The focus groups included people from the same professional groups or services; for example, children centre and outreach workers remained in one group, and allied health professional teams (stakeholders) and health visiting teams had their own groups. The parent who attended joined the group of children centre and outreach workers as she agreed this group was most acceptable to her. The role of the facilitators was to develop and generate group discussion surrounding their work with health visiting services and families with young children under five years. Participants were also asked about their perception of health visiting services, how they work with the services, and their thoughts on what are the greatest needs seen in families and children in the services they provide (for nonhealth visiting groups). Each facilitator was provided with a guidance document appropriate to the particular group they were facilitating (see Table 2 for one example of the guidance to facilitators).

The discussions in the focus groups were taped and notes made on flip charts summarising the discussions, and prioritising the identified needs. The key points from the discussions were fed back verbally to all the participants at the end of each discussion period through the day.

The tapes were transcribed and the flip chart notes were typed up by the research team following the event. Content analysis was used to identify the topics which the participants had identified as the priority areas of health visiting practice to be addressed through the toolkit [43].

7.2. Round 2. A questionnaire was developed listing each of the priority topics with a range of comments illustrating the rationale for the topic as described by the participants. The participants from Round 1 were invited to attend a second half day in June 2012, two weeks after the first session. Following a brief update on the project, each participant was asked to read each topic and comments from Round 1 and to rank each topic as a priority from 0 not important to 10 very important. The numerical rating system aimed to test the extent to which the group agreed or formed a consensus around the most important areas to be addressed in the toolkit. Participants were also given the opportunity to add a brief rationale for
Table 2: Facilitation guidance for stakeholder focus group. Introduction: we have some questions that we have prepared to help you think through what people in Tower Hamlets need and what services HVs should offer. However, we don't want these to limit you in any way. Please feel free to discuss things that you think are relevant. Note to facilitators: key questions are in the left-hand column and should be written on your flip charts in advance of the discussion.

<table>
<thead>
<tr>
<th>Key questions</th>
<th>Triggers if required</th>
</tr>
</thead>
<tbody>
<tr>
<td>What types of needs to you see or know about in your area?</td>
<td>Tell us about local health and social needs in Tower Hamlets.</td>
</tr>
<tr>
<td></td>
<td>Tell us about the things that you think impact family and community health for</td>
</tr>
<tr>
<td></td>
<td>example, practical/social issues: housing, legal advice, schools and education,</td>
</tr>
<tr>
<td>What gaps do you notice in current health and social service provision for</td>
<td>lifestyle issues, physical health problems, and emotional and therapeutic support.</td>
</tr>
<tr>
<td>families with young children?</td>
<td>What families have the greatest needs? And why?</td>
</tr>
<tr>
<td></td>
<td>What communities have the greatest needs? And why?</td>
</tr>
<tr>
<td>What gaps do you notice in public health provision for the local community?</td>
<td>What services are poorly resourced?</td>
</tr>
<tr>
<td></td>
<td>What could be done about these?</td>
</tr>
<tr>
<td>What are HVs/health visiting teams currently doing in your area?</td>
<td>How does your service interface with health visiting?</td>
</tr>
<tr>
<td></td>
<td>What things do families report that HVs do for them?</td>
</tr>
<tr>
<td>Tell us about what HVs/HV teams could do to support local community and</td>
<td>What things do HVs do well?</td>
</tr>
<tr>
<td>families?</td>
<td>What things could be improved?</td>
</tr>
<tr>
<td></td>
<td>Is there a difference between your personal experience of HV compared to your</td>
</tr>
<tr>
<td></td>
<td>professional experience?</td>
</tr>
<tr>
<td></td>
<td>What are your experiences of working with skill mix teams? Nursery nurses,</td>
</tr>
<tr>
<td></td>
<td>registered nurses, HV assistants</td>
</tr>
<tr>
<td>In your opinion what are the most important issues or top priority needs that</td>
<td>What types of needs could HVs/health visiting teams meet?</td>
</tr>
<tr>
<td>HVs/health visiting team should address?</td>
<td>How could they meet these?</td>
</tr>
<tr>
<td></td>
<td>Advice? Clinics? Assessment?</td>
</tr>
<tr>
<td></td>
<td>Therapeutic interventions?</td>
</tr>
<tr>
<td></td>
<td>What are the most important things for HVs to do?</td>
</tr>
</tbody>
</table>

their decisions if they wished. The topics and individual participants’ scores were entered onto a spread sheet, and mean scores for each topic were calculated. This generated an initial list of prioritised topics.

7.3. Round 3. A questionnaire, individualised for each participant, was constructed covering all the priority topics and sent to participants via email in July 2012. In this questionnaire, the participants’ individual score for each priority area was shown alongside the mean score from the group for that topic. Comments explaining the rationale for the topic, from the individual participant and other participants, were also included. The participants were asked to confirm their previous score for the topic or to change it in light of the mean score and the comments. In the third round, the participants were thus given the opportunity to reprioritise the priority topics.

8. Results and Discussion

The results from the three rounds are presented below in the order in which they occurred. The majority of the 25 participants took part in the three stages of this study, with 23 responses from 25 participants in Rounds 2 and 3. One participant was not present at Round 2 but undertook the online questionnaire at Round 3. Another participant completed the Round 2 questionnaire but not the one in Round 3.

8.1. Round 1. Twenty-five people attended the Delphi event representing health visiting teams and a wide range of stakeholders. Group discussion took place in several sessions over the day, each lasting for up to 2 hours, with the objective that at the end of the day each member would feel that their own priorities were properly represented on the list of priorities. Discussions were vibrant, interactive, and revealing and covering a wide range of issues from how health visiting services are perceived to how allied health professionals and children centres endeavour to work with families more closely. One participant from Children and Adolescent Mental Health Services (CAMHS) stated, “We feel underused...[health visitors should] feel free to refer babies as young as 2 months to CAMHS but nobody knows”. This discussion provided an opportunity to learn about how another service like CAMHS complements the work being achieved in health visiting such as early intervention strategies for maternal mental health. In the children’s centre group, there was a perception of HVs being constantly busy and it was observed that “lots of HVs are coming and going” leading to a lack of consistency for clients. These issues were raised as potential barriers to building sustainable relationships between health visiting and children’s centre staff; however, both groups
Table 3: Examples of focus group statements related to the priority health needs.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Example statements from Round 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of iron and vitamins</td>
<td>I facilitate weaning groups, even those who are fluent they do not know about the issue of vitamin D deficiency. People are not aware that there is not enough light in the UK, and they do not know that they need to give vitamin drops until age of 5. And the mothers are not aware they themselves are also vitamin deficient, and sometimes the prescription they get from the GP contains gelatin and they cannot use that and the GPs often are not aware of that. And when they are pregnant, there is a risk to the child as well. So that is it; in Tower Hamlets there is a big issue about vitamin deficiency. (Health visitor)</td>
</tr>
<tr>
<td>Mental health</td>
<td>One of the main issues is lower mood and depression amongst men and women. I am seeing it more and more in men. I do not understand why, could be financial, but I am seeing a lot of that and we are doing a lot of work around that. We are doing work with mothers to start off with, who are not clinically depressed for people who feel like sleeping all the time, and refuse to have an assessment done because of the stigma of being diagnosed with something. (Outreach children centre manager)</td>
</tr>
<tr>
<td>Speech and language</td>
<td>I have worked in TH for 7 years, I’m a child psychotherapist from CAMHSs. One of the needs that really sticks out in my mind is to support parents need at the very beginning of a child’s life. This is concept that you do not need to talk to babies. In CAMPHs, we come across mothers who say, “I did not know you talk with a baby”. Now the baby is 2 years old with no ability to speak or interact and being mistaken as autistic features. Encourage Mothers to interact, even best meaning mothers say, “I did not know you talk with a child, play with a child, look into the child’s eyes”. So not surprisingly, they do not know how to interact mothers interacting even in a basic way to play. Unfortunately, it is inability for parents to interact. I think that collaboration between CAMHS and health visitors is crucial. (CAMHS: clinical psychologist)</td>
</tr>
</tbody>
</table>

recognised the value of working together to achieve positive outcomes for families.

Each group identified major social issues such as poor housing, unemployment, social isolation, and difficult family circumstances linked to fragmented family relationships, difficult marriages, and problems with extended family as impacting the work of HVs. These concerns were recurrent themes in daily work with families; participants asked if an issue such as housing was worth identifying on their priority list as HVs have limited capacity to influence these kinds of social issues. It was agreed that all issues however great or small would be identified by the groups to ensure a true representation of their views about the priorities.

The discussions generated a large volume of data and some of which is illustrated in Table 3. Round 1 led to the generation of 27 priority topics (see Table 4). The purpose of Rounds 2 and 3 was to generate the priority ordering of the health needs.

8.2. Round 2. The questionnaire completed at the second meeting by individuals asked participants to give a priority score for each of the 27 topic areas from 1 to 10. The following provides an example of a questionnaire entry, on the topic of play, including representative statements from the discussions in Round 1 illustrating the topic.

Example Section from the Round 2 Questionnaire Completed by All Participants

Play. We need some form of play sessions which could be done in conjunction with children’s centre.

We wish that we could do more play activities as most people live in high-rise flats and the children are living indoors.

Children’s behaviour is really poor in hospital; they are stuck in a flat with lack of stimulation. When the toy library went, that created a real gap.

<table>
<thead>
<tr>
<th>Unimportant 0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Very important 10</th>
</tr>
</thead>
</table>

Please comment on the reasons for your answer ...........................................................................................................................................................................

The numerical rating system aimed to test the extent to which the group agreed or formed a consensus around the most important areas to be addressed in the project. A list of the 27 topics in priority order was generated by entering the results from the questionnaires into a spread sheet. A mean score for each topic was generated from the 23 responses in Round 2 (the same procedure was followed in Round 3) giving the list of topics in priority order.

Participants were also asked to add any additional comments to justify their scores. Table 5 illustrates some of these comments in relation to three topics.

8.3. Round 3. Individualised questionnaires for each of the 25 participants were constructed for Round 3. These included
additional comments made by the group and the individual during Round 2.

*Example of a Round 3 Questionnaire Emailed to Participants*

_First-Time Mothers_. First-time mothers need more support. Round 1 Focus Group.

Your personal score from 27th June: 9
Mean score of the group: 7.6

*Some General Comments Made from the Group, June 27, 2012 [Round 2 Questionnaire].* Depends on support networks around them. Some first time mothers will have support of family, friends and neighbours. Others who are more isolated may need more access to advice/information and support.

I see a lot of first-time mothers who are very socially isolated and do not have family support. They present with problems frequently. This is a problem that crosses both cultures and social class boundaries.

Each individual needs to “be” assessed in relation to support networks, understanding and expectations of parenting, and so forth.

Your Personal Comment. I see a lot of first-time mothers who are very socially isolated and do not have family support. They present with problems frequently. This is a problem that crosses both cultures and social class boundaries.

*First-Time Mothers: Today’s Score.*

<table>
<thead>
<tr>
<th>Scoring Level</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unimportant</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
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<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Very important</td>
<td>10</td>
</tr>
</tbody>
</table>

Participant 12.

The response rate was high with 23 of the 25 questionnaires returned. There was little change in the mean scores across the 27 topics suggesting a strong consensus among the stakeholders about the priorities. The order of the prioritised health needs remained the same as that in Round 2. The priority order is shown in Table 4.

The topics identified through the Delphi process cover a wide spectrum of health and social needs indicative of the level of deprivation in the area and pressures on families with children. The steering group discussed the list of topics and came to the conclusion that it would be impractical to address all of them at the same time given the time scale of the project (at that stage one year later extended to two years) and the resources available. Consideration of the list of ranked topics showed that a number were closely associated, for example, topics 1 and 3, infant stimulation and speech and language. Discussion in the steering group also identified topics which were the focus of local initiatives and development, for example, topic 2 domestic violence, and it was agreed that this work should be incorporated into the toolkit in due course. It was agreed that a number of the topics could be amalgamated into three priority areas to be addressed in the next stages of the toolkit development:

1. Infant stimulation and speech and language (topics 1 and 3),
2. Preventing obesity (topics 6, 7, 14, and 16),
3. Stressed and unsupported families (topics 4, 5, 12, 13, and 18).

<table>
<thead>
<tr>
<th>No.</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Infant stimulation</td>
</tr>
<tr>
<td>2</td>
<td>Domestic violence</td>
</tr>
<tr>
<td>3</td>
<td>Speech and language</td>
</tr>
<tr>
<td>4</td>
<td>Vulnerable children and families</td>
</tr>
<tr>
<td>5</td>
<td>Mental health</td>
</tr>
<tr>
<td>6</td>
<td>Overfeeding/force feeding/obesity*</td>
</tr>
<tr>
<td>7</td>
<td>Breastfeeding/infant nutrition</td>
</tr>
<tr>
<td>8</td>
<td>Families with no recourse to public funds</td>
</tr>
<tr>
<td>9</td>
<td>Behaviour</td>
</tr>
<tr>
<td>10</td>
<td>Poor uptake of services</td>
</tr>
<tr>
<td>11</td>
<td>Physical development</td>
</tr>
<tr>
<td>12</td>
<td>Social support, isolation, and emotional wellbeing</td>
</tr>
<tr>
<td>13</td>
<td>Parent relationships</td>
</tr>
<tr>
<td>14</td>
<td>Weaning</td>
</tr>
<tr>
<td>15</td>
<td>Housing</td>
</tr>
<tr>
<td>16</td>
<td>Healthy eating</td>
</tr>
<tr>
<td>17</td>
<td>Play</td>
</tr>
<tr>
<td>18</td>
<td>Unemployment and socioeconomic deprivation</td>
</tr>
<tr>
<td>19</td>
<td>Lack of iron and vitamins</td>
</tr>
<tr>
<td>20</td>
<td>Dental caries</td>
</tr>
<tr>
<td>21</td>
<td>Within population needs</td>
</tr>
<tr>
<td>22</td>
<td>Addictions</td>
</tr>
<tr>
<td>23</td>
<td>Health promotion for families</td>
</tr>
<tr>
<td>24</td>
<td>First time mothers</td>
</tr>
<tr>
<td>25</td>
<td>Sexual health</td>
</tr>
<tr>
<td>26</td>
<td>Children with disability/additional needs</td>
</tr>
<tr>
<td>27</td>
<td>Schools**</td>
</tr>
</tbody>
</table>

* Included as one category as statements concerning all three areas from participants indicated a relationship between overfeeding/force feeding and obesity.

** This category referred to the lack of school places in the borough and the difficulties this presented for parents with several children who had to make arrangements to transport children to different schools in different areas.
Table 5: Additional comments returned in the Round 2 questionnaires.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Example statements from Round 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviour</td>
<td>By educating parents on strategies to managing behaviour which can be applied to all areas for example, feeding/toilet training/child development, and so forth. Then this will surely result in preventing a number of problems we see with the parent/child relationship. (HV1)</td>
</tr>
<tr>
<td>Housing</td>
<td>Huge problem in borough having impact on development, constant moving, ability to parent, disrupted networks (professional and social), and health. We are not able to change the family's housing situation, however, we can offer advice on how to manage in the circumstances they are living in for example, signposting to services, educating on importance of play, and so forth. (HV2)</td>
</tr>
<tr>
<td>Infant stimulation</td>
<td>Bonding/attachment is critical at an early age. Secure attachment is part of the foundation of making relationships. The basis to emotional, social, and physical development and attachment which needs to be established in the early years. (HV1)</td>
</tr>
</tbody>
</table>

9. Conclusion

The use of the modified Delphi technique allowed a participative and inclusive approach that encouraged all the stakeholders to influence the selection of priority needs. It promoted consideration of the three elements of EBP utilisation outlined by Eraut [2] and led to identification of 27 priority topics from a variety of stakeholders’ perspectives that included consideration of their context of practice and experiences of service delivery. The process was also successful in engaging people through the three stages of the consultation process as 23 participants completed all three stages.

The prioritised list of topics is the list identified and then ranked by a group of HVs and other practitioners working with families in an area of high deprivation in east London. The highest ranked topic, infant stimulation and speech and language reflects the local concerns but also national policy concerned with the importance of the early foundation years [7, 12, 22]. A quarter of year 6 children in Tower Hamlets are classified as obese, above the average for England [44], and therefore the ranking of prevention of obesity as the second highest priority reflects local needs. There are many challenges to families in the borough including high levels of poverty, unemployment, deprivation, and environmental challenges including congested housing and high traffic flows [3, 44]. Many national reports have identified the pressures on families facing such challenges and thus the identification of stressed and unsupported families as the third priority reflects the high need in the area but is also in accordance with national findings and policy [9, 10, 12]. This list provides clear guidance for the next stages of development of the toolkit for health visitors in this area. It would be interesting to explore in other areas, with similar or different levels of deprivation, if the same or a different list of priority topics would be generated.

The next stages of the project involve examining the literature for evidence of best practice in the three amalgamated topic areas, collection of data on the use of this evidence in practice through observation of HV-client interaction, interviews with parents and HVs, and examination of electronic records. This will be followed by development and implementation of the EARLY toolkit and evaluation of its use in supporting HVs in their practice with families with children under five years.

Acknowledgments

The authors wish to thank The Burdett Trust for Nursing for their financial support, without which this project would not have been possible. They also thank Gillian Lesforis, the Barts Health NHS Trust, for all her help in organising the Delphi events and Rose Marx and Marcus Hostettler for their help in facilitating two of the groups.

References


Postnatal Depression Is a Public Health Nursing Issue: Perspectives from Norway and Ireland

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The framework provided by the Millennium Development Goals includes maternal health as an area of priority. Postnatal depression (PND) is a serious public health issue because it occurs at a crucial time in a mother’s life, can persist for long periods, and can have adverse effects on partners and the emotional, behavioural, and cognitive development of infants and children. Internationally, public health nurses (PHNs) are key professionals in the delivery of health care to mothers in the postpartum period, and international research collaborations are encouraged. Two researchers from the European Academy of Nursing Science (EANS) identified a need to collaborate and strengthen research capacity and discussion on postnatal depression, a public health nursing issue in both countries. Within the context of public health and public health nursing in Ireland and Norway, the aim of this paper is to present a discussion on the concept of PND, prevalence, and outcomes; screening issues for PHNs; and the research evidence of the benefits of social support in facilitating recovery for new mothers.

1. Introduction

The WHO-UNFPA [1] has clearly identified maternal mental health as fundamental in attaining the Millennium Development Goals. Postnatal depression (PND) is a significant public health issue, occurring during the perinatal period which is a time of intense change and transition for women. Distinguishing between a natural response to motherhood and symptoms of PND can be difficult both for new mothers and their families [2, 3]. Detection of and intervention in postnatal depression is crucial to the well-being of mothers, their infants, partners, and families. It occurs at a critical time in a mothers’ life and can persist for long periods. It can have adverse effects on partners and on emotional and cognitive development of infants and children [4–6]. Public health nurses (PHNs) all over the world have a major role in supporting families with new born babies, and a key concern for public health nursing is the framework provided by the Millennium Development Goals which includes improving maternal health [1]. Many cases of postnatal depression are not detected [7] as there is no international agreement on screening for postnatal depression. There are opinions that the screening instruments do not meet the WHO criteria for when screening should be performed [8]. The Marcé Society for Perinatal Mental Health is an international society for the understanding, prevention, and treatment of mental illness related to childbirth [9]. There is a growing view within the society in favour of undertaking universal psychosocial assessment in perinatal women, as long as it takes place within an integrated care model [10]. Ireland and Norway have many similarities from a geographic, demographic, and public health care model and public health nursing perspectives. The PHN is the primary health care professional providing care to women in the postnatal period in both Ireland and Norway.

The European Academy of Nursing Science (EANS) is a forum for connecting nurse/midwife scientists within Europe through scholarship and research [11]. It offers opportunities to test innovative ideas, pool expertise, and strengthen research capacity in line with the objectives of the European Research Area. Researchers may collaborate across participating countries on any subject which demonstrates a need...
for international cooperation. To draw attention to important common challenges for nurses, this collaborative research has great significance. The authors met at an EANS conference in the summer of 2012 and identified a need to collaborate and strengthen research capacity and discussion on postnatal depression as a public health nursing issue in both countries. The aim of this paper is to present a discussion on the concept of PND, prevalence, and outcomes; similarities and differences in public health and public health nursing models in Ireland and Norway; research evidence on identification and screening issues for PHNs; and the benefits of social support in facilitating recovery for new mothers. Whilst it is acknowledged that other health care professionals such as midwives, social workers, and psychologists also contribute to care of women with PND, the focus of this paper is on the role of the PHN. This paper will contribute to the discourse on PND and PHNs contribution in identification and treatment in the context of primary health care internationally.

2. Prevalence and Outcomes Related to Postnatal Depression

PND in women usually occurs 4–6 weeks after birth, and international studies find that between 8% and 15% of mothers are affected by this condition [12–15]. However, in some studies, the prevalence of postnatal depression ranges from zero to almost 60% [16], and the prevalence rates vary across and within countries, from as low as 4.4% at 12 months to as high as 73.7% [17]. In some countries, there are few reports of PND, whereas in other countries reported postnatal depressive symptoms are very prevalent. Prevalence rates reported from Ireland have also varied from 11.4% to 28.6% [18] with the most recent study with first-time mothers reporting prevalence rates of 13% at 6 weeks and 10% at 12 weeks [13]. Four Norwegian studies show prevalence between 8.9% and 16.5% [19–22]. These figures indicate a serious clinical issue for PHNs providing postnatal care to new mothers in the community.

There may be many reasons for this variation in prevalence which include using different screening assessments, using varying cut-off scores (10–13) on the Edinburgh Postnatal Depression Scale (EPDS) [23], assorted timescales (6–12 weeks postpartum), and different samples. For example, one study included a high representation of a sample of mothers with previous history of depression [24]. However, it is well documented that postnatal depression affects at least 10% to 15% of all mothers within the first postpartum year [2, 3, 16, 25]. Thus, several thousand women are affected by this condition each year and this should be an important issue for public health services. This condition has well-documented health consequences for the mother, child, and family [3].

Women who have PND are significantly more likely to experience future episodes of depression, and infants and children are particularly vulnerable because of impaired maternal-infant interactions and significant cognitive and emotional development [3, 5]. The nature and symptoms of PND are characterised by tearfulness, fatigue, anxiety, despondency, and excessive anxiety over the baby [23]. An indication of PND is a low mood that causes every day to be experienced as heavy and grey. Some women experience loss of control over their existence, which can lead to an increasing feeling of unease, irritability and outbreaks of anger, inability to cope, and thoughts of suicide. Depression ranges from mild, temporary episodes of sadness to severe, persistent depression [2]. Depressed mothers report higher parenting stress than nondepressed mothers [26, 27], and maternal depressive symptoms might also contribute to unfavourable parenting practices [28] which can adversely affect child growth and development and thus a concern for PHNs.

3. Public Health Care and Public Health Nursing Services

Ireland and Norway have many similarities from a geographic and demographic perspective and both have a strong commitment to primary care and public health. Both countries have similar sized populations, but economically there are differences in relation to poverty, life expectancy is lower, and inequalities are higher in Ireland [29]. The public health system in Ireland is a two-tier system where public and private sectors exist and is governed by the Health Act of 2004 [30]. Following this legislation, the Health Service Executive was established and is responsible for providing health and personal social services to the population. The public health system has a number of on-going issues which could have an impact on primary care services. These include long waiting lists; over capacity on hospital beds; patients awaiting admission on trolleys in the emergency departments; moratorium on staff recruitment leading to staff shortages. Ireland’s two-tier health care system has failed in many respects to deliver adequate, fair, and equitable services to meet people’s needs [31]. Not all citizens in Ireland have free health care at the point of delivery as it is based on income. Many health care payment schemes operate such as the General Medical Services (GMS) card, Pay Related Social Insurance (PRSI), and drug payment scheme. Nearly 40% of the population are covered by a medical card or a GP visit card [32]. Mental health services have not been prioritised by government and the quality of services lag behind international best practice. There is an ongoing recognition for the need for a shift from the medical model and in-patient treatment to a holistic model of care with recovery and community services at its core [33, 34].

In contrast to Ireland, Norway has universal health care for its entire population and free health care at the point of delivery. Municipalities are responsible for managing the services within Norwegian laws and regulations [35]. The Norwegian government has recognized the need for public health services to address mental health issues for women during pregnancy and after childbirth and acknowledges that well-child clinics are an especially suited arena for preventive mental and social work [36]. In both “The women’s health strategy” in St. meld. nr. 16 (2002-2003) [37] and the government’s “Strategic plan for the mental health of children and adolescents . . .” is the commitment to expand and strengthen support for women in this period of their lives. There is also
a wish to increase research on women’s mental health during pregnancy and birth [38], which also reflects the ethos of the Vision for Change strategy document in Ireland [33]. In a recent report from Australia [39], perinatal depression is estimated to cost the Australian economy $433.52 million in 2012, in financial costs only ($4,509 per person with perinatal depression). In addition to the financial costs, perinatal depression equates to a loss of 20,732 disability-adjusted life year DALYs in 2012, which represents a significant disease burden.

There are no comparable figures available for Ireland and Norway, but it is reasonable to assume similar costs to their economies. Guidelines for treatment of postpartum mental disorders are lacking in both Ireland and Norway [33, 40, 41], and resources have not been increased either in Norway [36, 42] or in Ireland [29]. Furthermore, hospital stay for women after delivery has been dramatically shortened in the last decades, from previous 5–7 days to currently 1-2 days. Since primary health care has not received the required amount of resources [33, 43], support for new families is significantly impaired. There is need for clinical nursing service improvement both from a resource and evidence based perspectives specifically for the identification and management of PND.

In Ireland and Norway, public health nurses (PHNs) are geographically based and provide a nursing service to new mothers and their infants in the community. Ireland has generalist public health nurses, which means they care for all persons within their defined geographic area from the cradle to the grave [44]. In contrast, PHNs in Norway are specialists and are responsible for preventive services provided to infants, children, adolescents, and their families [45]. Maternity services are free which entitles every woman to General Practice (GP) and hospital obstetric services. In general, midwives are employed to work in the hospital system with some regions having minimal community based service for up to 10 days postpartum. The work of PHNs consists of health promotion and primary prevention, which means promoting mental and physical health as well as good social and environmental conditions and preventing disease, injury, and disability [44, 46]. PHNs in Ireland are mandated to visit all new mothers within 48 hours of discharge from hospital, and similar to PHNs in Ireland are mandated to visit all new mothers within 48 hours of discharge from hospital, and similar to PHNs in Norway who offer home visits within the early weeks after birth and attendance at well baby clinics until the child is four years [40] or school going age [44]. Given the short length of stay at the maternity wards, this home visit is especially important to support the new family. Support and information from the PHN at the home visit can have a preventive effect on depressive symptoms in postpartum women [20, 47].

4. Identification of Postnatal Depression

On a very basic level, Norway has far more PHNs devoted specifically to public health issues, with one client group, compared with PHNs in Ireland providing services to all client groups with a preventative and curative remit. In Norway, there are 2069 PHNs employed in municipal family health clinics and school health services, and in Ireland there were 1702 PHNs employed in the Irish Health Service Executive [29]. PHNs in both countries have the most contact with mothers in the postpartum period and therefore are in a prime position to assess for postnatal depression and facilitate and help mothers to mobilise support from their social network and also to provide support when none are available. In Norway, recent reports suggest that there is not enough research of satisfactory quality available to give recommendations for how to work with PND in the municipalities [8, 48, 49]. In February 2013, The National Council for Priority Setting in Health Care in Norway [8] recommended that screening for postnatal depression should not be introduced on a national basis at the present time. The decision was based on that the EPDS screening does not meet the WHO criteria for when screening should be performed. However, the recent position paper by the Marc`e Society recommends undertaking universal psychosocial assessment in perinatal women, as long as it takes place within an integrated care model [10]. In Ireland, recommendations are made for interventions to address PND which may have a wide range of socioeconomic benefits, extending well beyond the impact of the intervention on the mother [33]. Screening for PND is currently not a routine component of the PHN postnatal visit, and thus, many women may not be assessed [50].

There is growing evidence that PND can be effectively treated and possibly prevented [27, 51–53]. However, according to Dennis [54] it is still undetected or untreated in many women. Although a number of tools (essentially self-report questionnaires) have been developed for the detection of depression, only eight studies assess their use in the postnatal period [55]. Only one of these, the Edinburgh Post Depression Scale (EPDS) [23], has been used in a sufficient number of studies to make a judgement on its usefulness. Recent studies [14, 25, 27, 28, 51, 53] indicate that EPDS can be a useful tool to detect PND in women. Cox et al. [23] developed this self-rating scale for detecting depressive symptoms among women who have just given birth. The scale has been translated into several languages. The scale considers the intensity of depressive symptoms that are present in the previous seven days. EPDS has been used both in clinical settings and in epidemiological studies and is generally well accepted by women [56, 57]. Although the sensitivity and specificity vary across languages and cultures, the sensitivity and specificity of the EPDS have been satisfactory in several studies [2, 15, 21, 58]. The form is described as a reliable screening tool [12] and has been recommended for screening of postnatal women [15, 59]. There has been much debate in the literature as to the suitability of using the EPDS in clinical practice for screening for PND. This reluctance is primarily related to the EPDS having reasonable sensitivity but lower specificity, and thus, positive predictive value is poor. This means that many women who do not have PND are being told of the possibility that they have the condition and then could be subject to further investigation, placing an increased and wasteful burden on resources. However, it is important to be aware that the EPDS is a screening instrument that indicates...
the possible presence of depression and not a diagnostic tool. To determine a clinical diagnosis of PND, it is necessary to use the EPDS, followed by a clinical assessment and an interview [2]. Thus, the clinical assessment done by the PHN after the EPDS is decisive of further followup. PHNs have described EPDS as a door opener for talking to new mothers about their mental health [52]. According to Seeley [60], the EPDS is only as good as the person using it. Similarly, using the Whooley et al. [61] questions plus the additional Arroll et al. [62] question has also demonstrated poor positive predictive value. Nonetheless, the Current NICE [63] guidelines recommend using them. Although little specific evidence exists for their use in the perinatal period, their ease of use and reasonable sensitivity and specificity, particularly if combined with the additional help question from Arroll et al. [62], suggest that their use in routine care may be practical and acceptable. The questions are simple screening methods which can detect postnatal depression and lead to a subsequent referral for a full clinical assessment followup. This screening technique is an opportunity to screen without the need for a more formal assessment. However, all postnatal depression screening and assessment must be combined with a treatment chain and systematic referral procedures [2, 10, 64]. Public health nurses have the most contact with mothers and new babies in the postpartum period and therefore are in a prime position to assess for PND and provide support. According to Negron et al. [65], it is important to identify social support resources needs of new mothers to facilitate their transition to motherhood and recovery after childbirth.

5. Social Support

International and national policy documents suggest that social support is necessary for maternal and infant wellbeing and facilitates women's transition to motherhood. In previous research, mothers in the postnatal period have reported help received from their partners and mothers, both with household chores and infant care, to be of great importance to them. Providing support for mothers in caring for their infants in the postnatal period is an important concern for nurses in the community, because research has shown that social support can facilitate women's transition to motherhood [66], some of whom find the transition psychologically stressful. Furthermore, previous research has indicated that social support from partners, maternal mothers and peers [67], and home visits from nurses [22, 68] have reduced postnatal depressive symptoms. Within the Irish context, given the importance of social support in facilitating transition to motherhood, Leahy-Warren [69] conducted research with first-time mothers (n = 99) exploring the relationship between social support and confidence in infant care practices at 6 weeks postpartum. Findings revealed that support in the guise of mothers' receiving positive affirmation with caring for their infant had a significant influence on their confidence in caring for their infants. Mothers' revealed that the sources of this type of support were their partners and own mothers. Results also showed that public health nurses and maternal mothers were the primary source of informational support. Therefore, it is essential that nurses facilitate the identification of individual mothers' sources of support and continue to provide them with information that is relevant and appropriate.

A more recent Irish study examined the relationship between postnatal depression, maternal parental self-efficacy (confidence), and postnatal depression during the first 3 months postpartum with a large sample of first-time mothers (n = 512) [14, 50]. The results showed that at 6 weeks, significant relationships were found between functional social support and postnatal depression and informal social support and postnatal depression. This means that support received from mothers’ partner, own mother, family, and friends positively influenced postnatal depressive symptoms at 6 weeks. The types of support that were significant were informational, instrumental (hands-on help), emotional (caring) and appraisal (positive affirmation). Findings also revealed that the higher the level of maternal parental self-efficacy (confidence) the lower the level of depressive symptoms. This means that mothers who have confidence in their own ability to care for their infants are less likely to have postnatal depressive symptoms. Nurses need to be aware of and acknowledge the significant contribution of social support, particularly from family and friends in positively influencing first-time mothers' mental health and well-being.

The best predictors of postnatal depression at 12 weeks were at-birth professional support and emotional support. What this means is that mothers who received low levels of professional support at birth were 3.24 times more at risk of PND at 12 weeks than mothers who received high levels of professional support. Furthermore, there was an elevated risk (2.92 times) of PND at 12 weeks in mothers with low emotional support, compared with those who received high emotional support at birth [18, 44]. In a study with first-time mothers (n = 271), when their babies were 3 months old, Tarkka et al. [70] showed that social support and support from public health nurses were important factors in first-time mothers coping with child care. Similar findings were reported from Taiwan, where findings revealed that nursing interventions enhanced women's (n = 122) social support and decreased their PND [71]. Razurel et al. [72] interviewed 60 women six weeks after the birth of their first child. The new mothers expressed the need to be supported and counselled when problems arose and regretted the lack of long-term postpartum support. Gao et al. [73] compared the prevalence of depression in the postpartum period and its relationship with perceived stress and social support in first-time mothers and fathers. In this cross-sectional study with a sample of 130 pairs of parents, they found that perceived stress, social support, and partner’s depression were significantly associated with depression in new mothers and suggest that counselling, support, and routine screening for depression should be provided to both mothers and fathers. A qualitative study using focus groups of women (n = 33) participating in a postpartum depression randomised controlled trial explored their experiences of social support in the postpartum period [65]. One of the main themes identified were mothers' major needs and social support expectations including providers of social support. Mothers indicated that support from partners...
and family was expected and should be provided without asking. Furthermore, findings indicated that identifying support needs and expectations of new mothers is critical for mothers’ recovery after childbirth. These findings signify the need for public health nurses to be mindful of the importance of support for mothers in the early postnatal period. Recovery can be facilitated by helping mothers identify the types of supports they need and who is best from their social network to provide specific supports. PHNs can contribute by facilitating and helping mothers to mobilise support from within their social network.

Glavin [47] discusses a model for prevention, identification, and treatment for PND in a Norwegian municipality. The PHNs in the intervention municipality undertook specific training related to PND [27, 52]. In this study, 2227 women participated, 437 in the control group and 1790 in the intervention group. At the home visit two weeks postpartum, the PHNs in the intervention group gave information (both written and oral) about PND and encouraged the mother to contact the well-child clinic before the first appointment if she felt depressed. A significant difference in PND symptoms was detected between the two groups at six weeks postpartum. This indicates that information and support can prevent some cases of PND with better outcomes for maternal and infant health and well-being [22]. The PHNs in the intervention municipality used the EPDS followed by a clinical assessment and an interview to assess all mothers for PND at six weeks postpartum. The assessment was followed up by supportive counselling sessions with a PHN for women in need of that. A total of 228 women, 64 in the control group and 164 in the intervention group, had an EPDS score ≥10 at six weeks. The women who received supportive counselling sessions showed a significant decrease in depression score compared to the usual care group up to 12 months postpartum [74]. The study by Glavin et al. [27, 47, 74] showed an effect on depressive symptoms among depressed women as well as among the nondepressed up to 12 months after delivery, and the results are supported by other studies [51, 53]. In a prospective cluster trial, randomized by GP practice with 1474 interventions and 767 control women, Morrell et al. [53] and Brugha et al. [51] used EPDS and trained health visitors to assess for PND and give supporting counselling sessions to mothers in need of that. They also reported a decrease in the PND scores among women who received support from health visitors. A review including fifteen trials, involving over 7600 women, Dennis and Creedy [75] reported that home visits after birth by public health nurses or midwives helped to prevent PND. Thus, several studies indicate that support from the PHN may have a preventive effect on PND in women.

6. Conclusion
The prevalence of PND at 10–15% is a serious public health issue and consequently a public health nursing clinical concern in the community. The adverse consequences of PND for mothers and their families necessitate the need for PHNs to identify those at risk. Public health care in the guise of primary care in Ireland and Norway is an ideal integrated model of care in the community in which universal screening could be achieved by PHNs with appropriate and adequate resources. Research evidence has demonstrated the significant beneficial effects of PHN support visits and facilitation and mobilisation of social supports from mothers’ social network. Priority needs to be given at a strategic level in both countries to resource a perinatal mental health strategy, embedded in public health policy to ensure that universal psychosocial assessment in perinatal women is undertaken within an integrated care model. The prevention, detection, and treatment of this condition in women are crucial. This needs to be considered given the benefits to the individual, the family, the community, the health care profession, and financial costs to each country.

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Research Article

Supporting Mothers’ Engagement in a Community-Based Methadone Treatment Program

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1. Introduction

In North America, opioid addiction to methadone, hydrocodone, and oxycodone has been described as an epidemic [1, 2]. In Canada, nearly 10% of women self-report an addiction to some form of illicit substance (e.g., cannabis; [3]) and nearly 2% abuse highly addictive opioid substances like oxycodone and heroin [4]. Many of these women are mothers of childbearing age [5] and face greater challenges than nonusers with raising their children and meeting their children's developmental, social, cognitive, and emotional needs [6]. Substance abusing mothers are at increased risk of developing affective disorders, low self-esteem, anxiety, and depression and are often challenged by social isolation, reduced support networks, and exposure to violent relationships [7] and all of these factors can influence a mother's capacity to parent her children [8, 9]. Taken together, unmitigated maternal substance abuse exacts social and health care costs by increasing the need for child protective, mental health and criminal justice services.

Protecting children from exposure to maternal substance abuse is a public health priority [10, 11], particularly for nurses who work with childbearing families in the community [12]. Children exposed to maternal substance abuse are at increased risk for developmental problems, such as cognitive deficits, language delays, emotional problems, behavioural disorders, and becoming substance abusers themselves [13, 14]. The increased likelihood of intergenerational transmission of substance abuse is linked to addicted mothers' parenting behaviour, often characterized as neglectful [6]. Notably, substance abuse is one of the top three stressors influencing children's development, along with mental illness and family violence [15], and the presence of maternal substance abuse is a greater risk factor to children's development than paternal substance abuse [13]. Indeed, the American Academy of Pediatrics recently described maternal addictions as toxic...
to children’s development and called for preventative public health interventions to reduce the detrimental effect of maternal addictions [16]. Given the increased risk for a variety of adverse health outcomes, opioid dependence is a growing public health concern [17], particularly for mothers responsible for the care of children [18]. Nurses engaged in public health practice are at the forefront of ensuring these families receive appropriate support [12].

One public health approach that nurses use to support and refer patients to manage opioid addiction is methadone maintenance treatment (MMT) [12]. Compared to control groups and other forms of opioid addiction intervention, MMT is an effective public health strategy. [19–21]. MMT has been associated with reduced opioid use [22–25], improved health outcomes and reduced mortality rates [26–30], enhanced mental health status [31, 32], and improved social and occupational functioning [26]. In some cases MMT has led to reductions in criminal activity [23, 33] and nonopioid drug use [22], but these have not been consistent findings across studies [34, 35]. Furthermore, involvement in MMT has been found to positively influence retention in addiction-focused treatment [23]. Amato et al. [36] conducted a meta-analysis of 52 studies on MMT and other forms of substance abuse intervention for opiate addiction and found that participants of MMT were less likely to prematurely leave treatment compared to clients who were receiving no addiction services, methadone detoxification, or buprenorphine maintenance.

Although MMT appears to have meaningful benefits, less is known about mothers’ experiences and how to promote and maintain mothers’ engagement in treatment. Given the impact of parental addiction on children, engagement in MMT may create opportunities for enhancing mothers’ parenting capacity through its positive impact on mothers’ emotional, behavioural, and physical health well-being. However, little knowledge exists about the influences of MMT on mother’s perceptions of their parenting or on the types of parenting supports and resources women need to facilitate their long-term engagement in MMT. Insights from the field have identified numerous barriers for mothers that influence their decision or capacity to seek and enter substance abuse treatment, including social stigma [37], lack of gender-specific treatment to address women’s psychosocial needs [38], fear of losing custody of their children, lack of childcare during treatment, fear of partner retaliation or violence [22, 28, 39], and living with an opioid-dependent partner [40]. Nonetheless, for some mothers, being a parent may be a powerful incentive to seek professional help in addressing their addiction [16, 29].

While MMT has the potential to enhance both a mother’s individual functioning and, thereby, her parenting capacity, mothers also experience challenges associated with being a parent that interfere with their engagement in MMT [41]. Research from the Center for Substance Abuse Research [41] has suggested that programs which bring together women and their children may be more effective at retaining women in treatment and have demonstrated long-term effects. This conclusion has been reaffirmed in two recent systematic reviews by Niccols and colleagues [42, 43], who found that substance abuse programs with integrated components focused on addiction, parenting, and child-related services lead to positive outcomes for both mothers and their children across a number of domains (e.g., parenting skills and child development). To date, however, researchers have not explored mothers’ perspectives of the supports and resources needed to assist them with their parenting or to successfully engage in long-term MMT. Neither have researchers explored the perspectives of expert service providers. Consequently, the current research was designed to fill these gaps by accessing both experiential (mothers) and expert (service providers) knowledge of methods and means to promote mother engagement in MMT and to seek their perspectives on the characteristics of the desired parenting supports and resources. Specifically, the primary goal of the study was to explore the experience of mothers participating in an outpatient Atlantic Canadian MMT program and their service providers to gain an appreciation of the impact of this intervention on parenting and mother-child relationships. The secondary goal was to learn from mothers about the types of supports and services that might assist them with their mother-child relationships and parenting to maintain engagement in MMT.

2. Methods

The Atlantic Canadian MMT program, which began operation in 2005, is staffed by a multidisciplinary team of nurses, physicians, and social workers who advocate a harm reduction model of care. Referrals to the program come from a variety of sources including public health nurses, primary care physicians, psychologists, detoxification centre staff (physicians, nurses, or psychologists), or self-referrals. The program provides comprehensive, client-centred, community-based services to its participants in the form of access to prescribed methadone, individual counseling and group counseling, and educational programs associated with addiction, as well as facilitation of referrals to other relevant community resources as needed, such as mental health services and social services to assist with housing, financial, and parenting supports. The program does not actually offer anything specific for mothers and their children. The model of intervention is based on Health Canada’s 2002 [5] guidelines for the best practices in the delivery of MMT interventions. Participants are eligible for the program if they have an opioid addiction but can be polysubstance abusers. Individual and group-based interventions focus on themes of addiction, self-esteem, infectious disease, hope, wellness, and anxiety, as well as support for new mothers or expecting mothers. Long-term retention in this program is a desired outcome given the maintenance focus of treatment once a client has stabilized on methadone. A recent evaluation of the program reviewed all cases (n = 458) admitted to this program between 2005 and 2010 [33]. The greatest gains were achieved during the first year of treatment, with self-reported improvements in opioid drug use, employment status, health, and mental wellness, as well as reduced involvement in criminal activity, including drug-related criminal activity.
After ethical approval was obtained, the study was performed in accordance with the ethical standards established in the 1964 Declaration of Helsinki and the 2010 Canadian Tri-Council guidelines for ethical research. All participants provided informed consent prior to study participation. Data collection occurred over a 12-month period between 2010 and 2011.

2.1. Participants. Mothers in outpatient treatment at the MMT program were recruited to participate if they met inclusion criteria. Eligible mothers ranged in age from 16 to 55 years and must have been actively parenting children between birth and 18 years of age. No specific duration limit was set for involvement with the program, but all cases were past the 3-month stabilization phase of the program. A combination of convenience, snowball, and word of mouth strategies were used to recruit the sample. Advertisements inviting mothers to participate were placed in strategic locations at the addiction treatment centre and presentations describing the study were made, individually, to mothers attending MMT. Mothers received a $30 grocery certificate to thank them for their participation in the study. Of approximately 90 mothers enrolled in MMT [33], 12 mothers volunteered to participate, providing sufficient numbers for qualitative data saturation (when no new themes emerged in the data) [44]. Table 1 contains a more detailed summary of the demographic characteristics of these 12 participants. Addiction service providers working with the Atlantic Canadian MMT program were recruited through consultation with the research project’s advisory committee that was formed specifically for this project and was composed of agency administrators, service providers (nurses and social workers), and a client representative from the treatment centre. A total of six service providers were recruited out of a potential pool of nine, including four social workers and two ancillary support providers who had administrative relationships with program clients (program coordination).

2.2. Semistructured Interviews. Mothers and service providers were interviewed using semistructured interview guides developed specifically for the study. These interviews were designed to determine their perspectives on parenting resources and supports to engage in long-term MMT. Although the interviews were structured slightly differently for mothers and service providers, the content tapped by the questions was consistent between the two interview protocols. Specifically, mothers and service providers were asked about (1) parenting support needs, (2) barriers to support faced by mothers, (3) knowledge and use of support resources, and (4) preferences for parenting support and resources to facilitate engagement in community-based addictions treatment.

2.3. Procedure. All service provider interviews and most of the mother interviews were conducted at the addictions treatment centre. One of two female graduate students conducted the interviews after receiving training in interviewing skills. Childcare was provided for the children of mothers as necessary. One mother interview was conducted in a private room in a public library closer to her home. All interviews were audio recorded for later transcription and analysis using NVivo version 9 software. Interviews were transcribed verbatim and subjected to a validation check for accuracy. Demographic information (age, gender, and ethnicity) and family composition (number of children and marital status) were collected prior to the interview.

Thematic content analysis was employed to examine the data, consisting of several steps [45]. First, a category system (coding framework) of key themes was inductively created by

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**Table 1: Demographic profile of participating mothers.**

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>n</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
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<td>30.75 years (7.42)</td>
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<td>20–24 years</td>
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<td></td>
</tr>
<tr>
<td>25–29 years</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>30–39 years</td>
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<td></td>
</tr>
<tr>
<td>40+ years</td>
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<td></td>
</tr>
<tr>
<td>Current employment</td>
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</tr>
<tr>
<td>Homemaker</td>
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<td></td>
</tr>
<tr>
<td>Unemployed</td>
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<td></td>
</tr>
<tr>
<td>Partial technical school</td>
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<td></td>
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<tr>
<td>Completed technical school</td>
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<tr>
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<tr>
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<tr>
<td>Number of children</td>
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<td></td>
</tr>
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<td>1</td>
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<tr>
<td>5</td>
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</tr>
<tr>
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</tr>
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</table>

Note: some participants did not provide responses to each of the demographic questions. Thus, totals do not always sum to 12 participants, but range from 9 to 12.
the first two authors and an academic colleague to capture all data from a subsample of randomly chosen interviews. Second, two trained research assistants read and coded all interviews under the guidance of the first two authors. Additional codes were added to the coding framework as new themes emerged from the data. After all data were coded, identified overarching themes and subthemes were identified that addressed the research questions. The final step of the analysis involved triangulating data by source (mothers in MMT/service providers) to enhance the value and validity of the study's findings.

3. Results

3.1. Trajectory of Addiction and Treatment: Addiction Onset, Reasons for Seeking Treatment, and Perceptions of MMT Impact. The mothers described the onset of their addiction to opiates and other substances as occurring through a variety of circumstances. The most common circumstance was “from a medical issue,” for example, chronic back pain. Others noted that they became addicted after being introduced to drugs through a boyfriend or partner, experimentation, or because drug use seemed glamorous. A third cited their children as the main impetus for seeking treatment. Mothers wanted to be better parents:

I decided “you know what, it’s getting out of control.” (...) And not only that, my daughter was twelve going on thirteen and I thought “you know what? I do not want her growing up in a city either and maybe she’ll turn out like I am right now (...). (MMT 04)

Similarly, a number of service providers attributed mothers’ motivation to address their drug use to their desire to be a better parent. As one service provider suggested, “that’s number one, try and get cleaned up to be better moms, to be better able to engage with them, as illustrated in the following statement:

I’m not foggy anymore, I’m more clear and I’m just a better mother. I play with [my children] all of the time, I do activities, I read to them, whereas before I just used to feel like everything I did was a chore. But now I just take everything and I’m grateful for it. (MMT 03)

Most claimed their relationship with their children had improved after attending the MMT program. Mothers reported that they had more time and energy to devote to their children and were more emotionally available. Their relationships with their children were also described as more open, honest, and marked by a stronger bond. Overcoming their addiction allowed some to get their relationships with their children “back to normal” after a period of relative neglect:

Before you are on Methadone it just feels like you are lying all of the time, lying to yourself. When I was on the pills I wasn’t active and wanting to do stuff like I should have, like going to school functions and stuff like that. The father would be doing all of that. (But) now that I’m on Methadone I feel better and I can do all of that stuff. (MMT 02)

Many mothers felt that the MMT program had a positive impact on their relationships with their families. Regarding their children’s personal development, however, the vast majority thought MMT had no significant impact at all. While describing both positive and negative changes in their children’s behaviour, mothers attributed these changes more to the removal of drugs in their lives rather than the MMT program itself. Some reported that their children were happier, while some children struggled with the frustration of having to attend sessions and take daily trips to the pharmacy with their mothers.

3.3. Support Needs and Preferences. When discussing which of their support needs were successfully met by MMT, mothers indicated that the program was helpful by providing them someone with whom they could talk about their issues, access to classes on parenting skills, readily available social workers or counselors, and emotional support. According to one mother,

Just having somebody to talk to and being able to come in and give you different resources too, because I really did not have a clue, I did not ever think I would have kids. It was just all thrown on me so it was nice having that support. (MMT 12)
3.3.1. Barriers to Support. Mothers discussed the support needs that were not met by MMT. The majority of complaints pertained to the absence of programs within the context of the MMT program itself that addressed the issue of children, such as services facilitating the bond between mothers and children. As one mother suggested,

They should have a program [at MMT] to watch your kids or anything while you go to group and stuff (...) We've said it to them but they said they do not have [a service] to watch kids over there. (MMT 05)

They also encountered a number of barriers to support in their daily lives and in their attempts to access the MMT program. The two most common barriers were a lack of daycare facilities and convenient, affordable transportation. Transportation issues generally involved the complicated logistics of making regular trips to the centre, as few mothers had access to their own vehicles. According to one mother,

My issue was when I first go in the Program I was attending a meeting that I really enjoyed and we did not have a car at that point and they were giving us transportation to the meeting and then all of a sudden it stopped and I'm like "well how am I supposed to get there?" (...) I think there should be transportation for people that need it. (MMT 07)

Compounding this problem was the distance between clients' homes and the MMT centre, which some felt was too far out of the way and was particularly difficult to use with children in tow. One mother described her frustration with taking the bus to treatment, stating,

"It's hard to get transportation out here sometimes. When I first lived here, I was taking a bus with a newborn baby and [my oldest child], with a four year old on a great big double stroller by myself (...). (MMT 05)

The cost of transportation was another prohibitive factor for some mothers, as cab fare and the cost of taking a bus surpassed their budget. As one mother commented,

"Having to come into town everyday was like a five dollar trip because coming in and going back out again, so that caused barriers. (MMT '06)

They also lacked the financial means necessary to enroll their children in daycare, which limited their ability to attend sessions and was a significant barrier to their recovery. As one mother suggested,

Too bad they did not have childcare here at [MMT] and then I think more people would come to the meetings because it would be easy for them. It is hard finding sitters, (...) what do they do? (MMT 07)

Wait time was an additional barrier to treatment for some, as were more personal issues, such as: lack of family support and embarrassment or fear. Another barrier identified by mothers was a lack of information about the availability of MMT, both within addictions services and the greater community. One mother commented,

"I just think its lack of knowing about it. People do not know. (...) Hopefully there is for people who need it. (MMT 07)

3.3.2. Family and Community Supports. Of all the potential support resources available outside of MMT, mothers' parents were called upon most often and adopted the widest variety of supportive roles. Their parents provided basic needs, such as childcare, emotional support, and affirmational support. In contrast, some mothers revealed that they were reluctant to leave their children with their own parents, due to troubled interpersonal relationship histories. However, their parents were still a better option than other members of their social network, who were often drug abusers. As the following passage illustrates, they often need their parents to care for their children during recovery,

...I was sick, like really, really sick because I couldn't get my methadone. So I called my mom and I knew what was going to happen. I knew the outcome of it and I told her and I said, "Please come get [child]." It broke my heart to do that but I told her, I said "Come and get him because I cannot sit here and be sick and take care of him and I know what I have to do not be sick." (MMT 05)

Mothers' friends and siblings also helped by providing childcare. One spoke about being able to talk to a friend about her urges to use,

If she's having a bad day or I'm having a bad day and if she wants to use, she'll tell me instead of going out and using. It's just better to talk about it (...) than keeping it in because if you keep it all in and you end up just going and doing it then. (MMT 05)
Mothers also found support within the wider community, from counselors and social workers. One mother stated,

There's a place over north though that gives you diapers and formula and stuff. (...) I'm on social assistance so they give you lots of help. Bus passes and things like that to help you get back and forth. (MMT 12)

3.3.3. Preferred Medium for Support Delivery. All twelve mothers were universally in favour of one-on-one support compared to group support. According to service providers, one-on-one support allowed providers to focus on the mother, addressing her needs specifically, rather than in general terms. The private nature of sessions allowed mothers to share intimate details they might not be comfortable discussing in front of a group. One service provider commented,

Especially the moms that have the kids, a lot of them have taken advantage of individual counseling, the one-on-one counseling, because lots of times their issues are so personal that they really want to air them in a group. (SP 04)

Group support, however, was also widely suggested by mothers, as it allowed them to support one another,

...they cover things in groups that you might not know how to deal with, like people give their advice, if you are craving what do you do? You might not think of all of these ideas by yourself but you get a lot of them at groups and just other people's experiences because they've been in the Program longer... (MMT 07)

3.3.4. Preferred Method of Contact with MMT Service Providers. For preferred method of contact, all twelve mothers favoured face-to-face interactions with service providers. This was followed by telephone contact, which was favoured in part for its ability to provide instant, twenty-four hour access to service providers. As one stated “it would be nice for people to know that they could pick up the phone and have that instant kind of release and advice.” (MMT II)

Service providers recommended face-to-face, telephone, and online treatment. Service providers preferred face-to-face contact given its ability to facilitate intimate communication. A service provider stated,

I prefer face-to-face, because that way you can gauge peoples cues, you can tell if someone is uncomfortable, you can tell if someone is really engaged, and it gives you just that opportunity to connect. (...) when you sit with someone face to face and they're letting you in on what's going on and sharing that with you there's an inherent trust there that's very different than over the phone. (SP 01)

Telephone support was considered an important resource, as it allowed mothers with hectic schedules to contact support staff should they have a crisis or need specific information. Some service providers reported that telephone support worked best as a secondary option. As one provider suggested,

I do not think telephone support exclusively, but I think telephone support is important. For example, we have moms that telephone support is huge, they can call and do call often and we are available so that we can talk to them (...). We cannot conduct long-term, significant therapeutic counselling on the phone, but we certainly can provide the affirmations, the support, the sort of assurances, the reassurances, the addressing the immediate perception or an immediate crisis, all of those sorts of things. (SP 03)

Like telephone support, computer-based support was seen as a useful secondary resource, particularly for providing a convenient access point for information about addiction recovery. However, these service providers expressed concern about mothers’ ability to access computers. A service provider commented,

I think moms that have a hard time getting out, that might be a good way for them to be able to do that because they could go online. [My concern is] do they have computers? (SP 05)

3.3.5. Preferred Facilitator for Support Provision. When discussing their preferred support provider for support groups, most mothers suggested a peer—a former addict who had successfully gone through treatment. They felt more comfortable talking to someone who knew what they were going through firsthand. As one mother commented,

Because no one really understands unless you’ve been through it yourself, really, they do not. I mean they try to and God bless them but they do not, so I think that is the best person to talk to or someone who at least understands addiction. (MMT 07)

Some thought a professional facilitator would be the best, while others found a combination of the two to be ideal. In contrast, all of the service providers felt that support groups should be facilitated by professionals, because of their specialized education and training, and some discussed the possibility of a combination of professional and peer facilitation.

3.3.6. Preferred Location of Support Provision and Support Topics. For the ideal location, some mothers thought the program’s present community location was fine. Others thought it would have helped to have sessions closer to their homes, or else somewhere more generally accessible. One mother suggested,

It would have to be somewhere where everyone can get to, like maybe somewhere central. Somewhere it’s easy to get to, accessible. (...) I think
if it is just a walk-in thing it would work better because when you go in there on your terms. (MMT 07)

When asked what topics the ideal treatment would cover, mothers suggested parenting and affirmational and emotional support. According to one mother,

Things are going to change in the household when someone starts getting well. Changes the whole dynamics of the household because when you’ve got somebody who’s using (...) the child becomes the parent. That whole dynamic is going to change. All of a sudden, the child whose been probably getting away blue murder because he’s the parent is suddenly going to be the child again... (MMT 06)

For the ideal duration of MMT programs, mothers typically suggested between an hour and an hour and a half. For ideal frequency, mothers opted for once or twice a week.

3.3.7. Desired Support for Mothers. Lastly, mothers were asked to list potential areas of support they would find useful in an ideal MMT program. The most common suggestion was emotional support. An extension of this, group support, was also suggested.

Some people do not have family, some people do not have friends so it would be nice to have somewhere where they could go and talk to people if they needed to or even a place where moms could get together, (...) I think a lot of parents get discouraged too once they lose their kids they think there is no hope. (MMT 07)

In addition to emotional support, mothers felt information about methadone treatment would be important. One suggested a fairly extensive program for children whose parents are undergoing treatment, teaching them about methadone and addiction as well as educating parents on practical aspects of parenthood, such as how to enroll children in school. Another suggested,

When it comes to the children, I think they need education as well... (Example) that the methadone is not another drug, that it is a process of helping to get well, because there’s a lot of information out there where people are saying, “Oh they’re just going from one drug to another” and then the kids get fed up. (MMT 06)

Two service providers also believed that treatment should extend beyond mothers and address the needs of children as well. It is important, they felt, to treat children as individuals in need of counselling instead of roadblocks to their mothers’ recovery. Furthermore, while mothers and children must both be addressed in treatment, so too must the bond between them. Facilitating stronger bonds between mother and child will help the family as a whole. One service provider commented,

What’s going on with women’s relationships with their children? With themselves? Are women’s needs being met? Because when women’s needs are being met, they’re better able to meet the needs of their children. (SP 01)

4. Discussion

MMT has been shown to be a useful treatment for opioid addiction (e.g., Johansson et al. [23]) in targeted public health services. By participating in substance abuse treatment programs like MMT, mothers struggling with addiction not only stand to help themselves but also may have the opportunity to minimize the risk of poor developmental, mental health, and behaviour outcomes for their children [43], reduce the likelihood of intergenerational transmission of addiction [18], and limit the social and health care costs associated with addiction. Extensive research has addressed the negative effect of substance abuse on mother-child relationships and child development (e.g., Bowie [39]), but very little research has examined mothering in the context of treatment for opioid addiction and general substance abuse. Existing research has suggested that motherhood status [40], residing with one’s children [46], and enhanced social services [40] can each influence treatment success, as can integrating parent and child-focused interventions within substance abuse treatment for mothers [42]. However, mothers who decide to seek treatment still face significant challenges that can then interfere or complicate their engagement in substance abuse treatment, such as poverty, prior experiences of losing custody/access to one’s children, inadequate/unstable housing, parental stress, domestic violence victimization, and insufficient or absence social support [47]. Thus, the current research examined mothers’ and service providers’ perspectives on their experience of being mothers in MMT, and on the parenting supports and resources that would assist mothers in successfully engaging in long-term MMT. The information gained from the current research will be of value to public health nurses who deliver substance abuse treatment services, as well as to researchers, managers, and policy experts who develop best practice models for such public health interventions.

A significant strength of the study was that the perspectives of mothers and their service providers were largely in agreement [48]. Many of the women in the current study chose MMT because they were often motivated by the desire to be better parents. One of the major barriers for mothers seeking and/or maintaining treatment for substance abuse is the fear of losing custody of their children once professionals become aware of their addiction issues [38, 49]. Similarly, Hughes et al. [50] found that mothers who were able to retain care of their children while being engaged in residential treatment programs have significantly better outcomes than mothers who did not retain their children. Positive outcomes also have been found for mothers who attended special mother-child service as part of their addiction intervention [51]. In both of these latter two studies, retention and successful discharge from treatment were enhanced by the presence
of children in the residential care settings. In light of these types of findings, child-centered policies have been criticized for focusing more on the child and limiting maternal rights rather than promoting mothers’ health, safely, and capacity to parent their children [52]. However, research into the role of children in mothers’ treatment success has been mixed. For opioid-dependent women, having a higher number of children has been associated with poorer treatment history; that is, parenting responsibilities can limit treatment-seeking behaviours [40]. Faupel and Hanke [53] also noted a significant negative relationship between motherhood and enrollment in community-based treatment. Thus, greater awareness of these barriers and how to overcome them within the context of a community-based substance abuse treatment program are required.

Findings from this study agree with others’ observation that while MMT engagement leads to more positive outcomes for mothers, accessible and safe childcare and family responsibilities act as barriers to MMT even when this service is available within the community they reside [49]. Compounding the childcare issue can be the impediment of transportation. For the mothers in the current study, attending treatment meant traveling long distances, often by means of public transportation that involved multiple bus transfers and reliance on third parties to provide a drive to the treatment site. Although not specific to mothers or women, Burbridge [33] reported that 42% of male and female clients in the same MMT program from which our mothers were drawn resided between 100 and 200 km away from the treatment centre and another 2% lived more than 200 km away. Thus, providing onsite childcare and easier access to efficient transportation to attend MMT services would make treatment much more accessible for mothers. These are public health issues that nurses engaged in MMT can address through patient advocacy and policy influence.

Mothers’ perspectives in the current study echo those of Lundgren and colleagues [54] who advocated for childcare services for mothers in MMT and the need to develop specific parenting support services to promote engagement in MMT, such as skills training and parental counseling. These services may be provided in typical primary health care settings by public health nurses. The mothers in the current study specifically described a need for interventions that could help them rebuild relationships with their children that have been damaged or strained by the addiction. The provision of parent and family-based interventions has been shown to reduce parental stress in parents engaged in MMT, while also reducing problem behaviour in their children and enhancing their family functioning [10, 11, 42, 43]. Thus, multicomponent programs that address addiction issues, family dysfunction, and parenting have the potential to maximize treatment gains for both mothers and their children. The need for this type of intervention is not unique to mothers in MMT, as experts have also noted a similar need for fathers [55]. Further research is needed to establish ways that addiction services might address these parenting capacity needs through the provision of childcare, parenting skills, and family-based interventions. Given public health nurses’ frequent focus on childbearing families, better integration of services for mothers receiving MMT into the existing public health service network is an area worthy of exploration.

Previous research has revealed that limited supportive treatment services are available for mothers who abuse substances relative to what is available for men and single women [38]. Mothers in the current study revealed that they relied most heavily on their family and friends for support during treatment, followed by other community and service providers. According to the mothers in the current study, MMT programs should focus on providing greater support and encouragement to mothers, provide information to mothers about how to speak with their children about addiction and the recovery process or offer programs for children to attend on these topics, and provide services to better promote parenting skills. In general, mothers believed that the formal adoption of these parent-child focused components to their MMT program would enable them to strengthen their relationships with their children and enhance their parenting capacity. The only program available directly through this particular MMT service that pertained to children was geared toward expectant and new mothers. Although these maternity focused interventions with mothers dependent on substances have been shown to have value for reducing risks to both the mother and her infant [56], they do not meet the needs of mothers who are raising older children and adolescents. Formal partnerships with community and public health programs and social service agencies that provide parenting enhancement focused interventions for mothers in substance abuse treatment appears to be a valuable component of addiction intervention for mothers, for both them and their children. Other addiction programs have recognized the value of going beyond treating the substance abuse by means of multidimensional need screenings, cross-agency case planning, and service partnerships, such as that used by the Breaking the Cycle program in the United States for criminal offenders [57] and comprehensive outreach support services characteristic of such programs as the Sheway Project in Canada, which assists high-risk women who are pregnant or caring for infants [47]. The Sheway Project has adopted a harm reduction approach to its work with mothers and emphasized a nonjudgmental and respectful decorum towards mothers amongst its staff and service delivery to promote engagement. Evaluations of the Breaking the Cycle and Sheway Project programs have demonstrated improvements in participants’ family functioning [47, 57]. Poole further noted benefits of the Sheway Project with regard to stabilizing the housing situation of mothers, enhancing mother’s engagement in pre- and postnatal care, and the likelihood of mothers retaining custody of their children. However, Poole’s evaluation identified gaps with regard to services for the partners of the mother’s accessing addictions treatment and their children who were beyond the target age for the program of 18 months of age, parenting services, and other supports to provide safety and security to these families.

In the current study, the service providers who participated in our interviews appeared to appreciate mothers’ experiences and recognized the complexity of being a parent in treatment. However, this is not always the case.
Previous research has found that service providers sometimes hold stigma-related beliefs, stereotypes, and negative attitudes about mothers with addiction issues, and concerns for children of ten supercede concerns for mothers. These views can translate into judgments and misrepresentation of mothers by staff, which then interferes with a mother’s willingness to engage in addiction treatment and support services for her children [58]. A qualitative analysis of service providers who provided health services to antenatal mothers with addiction issues revealed that staff tended to be more accepting and empathetic towards mothers with an addiction issues when these staff had a better understanding of the experience, challenges, and complexities of substance-dependent mothers [56]. Thus, staff working with substance-abusing mothers and their families are likely in a better position to overcome barriers to patient engagement when they can use their empathy and understanding to realistically support and encourage mothers, rather than to judge or hold mothers to negative expectations.

In addition to parent-child focused supports, mothers in the current study also spoke about the nature of service delivery. Many felt that the provision of support through individual counseling would give them an opportunity to explore personal issues in a confidential setting that goes beyond the direct addiction issues. These mothers also expressed value in group sessions as they viewed this medium of intervention as being able to provide them with the emotional support and words of encouragement they desired through the sharing of similar stories and experiences. While face-to-face support was by far the preferred mode of contact for these mothers with their service providers, they also recommended greater use of telephone contact because it would allow for 24-hour access to service provider support. In addition, many mothers wanted MMT to incorporate supportive resources that were facilitated by a peer who has successfully gone through treatment.

4.1. Study Limitations. First, the sample size for both mothers and service providers was low. Although data saturation was obtained for the mothers’ data, this was not ensured in the service providers’ data. Nonetheless, the themes identified in the 12 mothers’ and six service providers’ interviews shared a number of commonalities that lend credence. Thus, the current data likely reflects the experience of some women and service providers involved in this particular MMT program but may not necessarily fully generalize to the experience of mothers who chose not to participate or to mothers in other MMT programs. Fortunately, almost all of the staff employed with this MMT program volunteered to participate in the study. A second major limitation of the current research was the lack of voice given to the children of the interviewed mothers. Inclusion of age-appropriate child-focused interviews and assessment methods would have allowed the research findings to be further contextualized from the perspective of children in terms of their needs for supports and services while their mothers are engaged in treatment.

5. Conclusion

Mothers who struggle with addiction face significant barriers to engaging in substance abuse treatment, especially when treatment requires long-term commitments like MMT. In public health, MMT is the gold standard for helping individuals overcome addictions to opiates, but these interventions must be delivered in a manner that is sensitive to the needs of mothers and with an appreciation of the potential impact such programs have on parenting capacity and promotion of the well-being on the children of these clients. Inclusion of child and family-focused interventions into substance abuse treatment models that provide service to mothers is essential and indeed recommended. Mothers face great barriers to remaining engaged in community-based MMT due to challenges accessing safe and reliable childcare and accessing reasonable and reliable transportation to and from treatment sites. Public health nurses and other treatment providers and program managers must deliberately and creatively present solutions to these barriers to maximize the engagement of mothers in treatment. However, it is important to acknowledge that research often falls behind innovative clinical practice, and many MMT programs in public health are likely already working to address these solutions.

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Research Article

Interprofessional Collaboration in the Detection of and Early Intervention in Child Maltreatment: Employees’ Experiences

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Child maltreatment is a global problem and a multidimensional phenomenon occurring in all social classes. This study depicts interprofessional collaboration associated with the detection of and early intervention in child maltreatment taking place in the family. The data were collected in a large Finnish city, Tampere (207,866 citizens). A survey was administered to employees in daycare, basic education, social and health services, and police (n = 865). The results indicate that interprofessional collaboration associated with the detection of and intervention in child maltreatment was best accomplished by social service employees and police personnel. Employees in daycare, basic education, health services, and police had little knowledge of the methods used in other units. The most support for collaboration was reported by employees in social services and day care. The results provide basic knowledge of interprofessional collaboration associated with child maltreatment between the agencies involved in the study. The research evidence can also be utilized in an international context when developing collaboration between different fields.

1. Introduction

The United Nations Convention on the Rights of the Child [1] emphasizes the best interests of the child and his or her right to special protection. The convention is an effort to secure the child's right to parents and family, but on the other hand, emphasis is laid on society's obligation to offer the child protection and care if the child is being maltreated. Following the age definition laid out in the convention, the present study defined all human beings under the age of 18 as children.

In this study, child maltreatment refers to physical and psychological abuse, sexual abuse and neglect occurring in the family, and living in the atmosphere of domestic violence. Different forms of maltreatment may appear either in isolation or in various combinations, and it is often difficult to make a distinction between the different forms of abuse [2–5]. Child maltreatment may vary in severity: it can involve any activity or lack of activity associated with a child or a child’s life circumstances resulting in a deterioration of the child's life situation [2–4].

Child maltreatment is present in all societies, but due to different methods of recording statistics and differences in the detection of the phenomenon, there are no reliable and comparable figures on the incidence of child maltreatment. National assessments and comparisons in Western countries have been made, however [4]. In addition, comparison is made difficult by the fact that corporal punishment of children is not prohibited by law in all countries. According to cross-national estimates, approximately one in ten of child maltreatment cases make their way into official statistics.
For instance, in the United States even as many as 900,000 children annually are estimated to be victims of abuse [5, 6]. In the Western countries, approximately 4–16 percent of children are exposed to physical abuse annually, and one in ten children are neglected or exposed to psychological abuse. Five to ten percent of girls and five percent of boys have experienced childhood sexual abuse [4]. A Finnish study of victims of abuse revealed that 12 percent of children under 15 had been victims of mild domestic abuse during 2008, while 4 percent had been victims of serious abuse [7]. Twelve percent of children had witnessed domestic violence between parents [8]. In Finland, mild domestic abuse experienced by children has dropped substantially over the past 20 years, but the levels of severe domestic abuse have remained almost unchanged. Instances of father–daughter incest were reported by 0.2 percent of girls while step-father-daughter incest was reported by 2 percent of girls. Boys did not report experiences of incest [7].

The detection of and intervention in child maltreatment are always difficult and challenging tasks to achieve for professionals working with children. In earlier research, it has been shown that the detection of and early intervention in child maltreatment call for interprofessional collaboration [2, 9] to pool the knowledge, competencies, and resources of employees. In addition, separate agencies, workplace cultures and tasks require competence in interprofessional collaboration [10–14]. Interprofessional services for children and families related to the detection of and intervention in child maltreatment are organized with different methods on both the national and international level. When collaboration takes place across professional and organizational boundaries and work units, the different views, tasks, and responsibilities interfere with interprofessional work, even though they share the concern for a child’s situation. In the development of special competence for different professions and collaborative skills, the central goals are to increase knowledge and identify both common work practices among different professions and practices that are specific to each profession [15].

In this study, interprofessional collaboration refers to collaboration and teamwork between the employees of different organizations, agencies and units, and professional groups. The partners in interprofessional collaborations are all professionals coming into contact with families of children, with each professional group having its own important role [2, 3, 9]. The focus is on employees who meet children everyday and who encounter situations where there is reason to suspect and evaluate the possibility of maltreatment [11, 16]. In order to promote collaboration, the support of the superiors [17] and the work community is vital [11]. The collaboration is based on the needs and safety of children [9, 13].

According to a report by Unicef [18] on the well-being of European children, more information is required on domestic violence experienced by children. Child maltreatment and interprofessional collaboration have been in the focus of researches for decades, but at the same time these themes have rarely been combined under the same study. In most studies, the focus has been on examining the collaboration between a few professions and work units (e.g., [19]). In addition, the content of the terms used in studies has varied. The term *child maltreatment* has been used to refer to violence experienced by children and youth (e.g., [16, 20, 21]). The terms *child abuse or violence experienced by children* have been used as parallel terms to child maltreatment [2, 22, 23]. Earlier studies have focused on signs of physical abuse, reasons behind violent behavior, and individual events from the point of view of the victims of violence and perpetrators of violence. Child sexual abuse has been studied from the point of view of physical findings and symptoms. It is more difficult to give evidence of emotional abuse and neglect than of physical abuse, and therefore it is identified and studied less. *Maltreatment* is an umbrella term that covers both negative actions and neglected actions towards a child [3, 24]. The information obtained is scattered and it does not give a clear holistic picture of the interprofessional collaboration between several actors that is related to detecting and intervening in child maltreatment. Therefore, it is problematic to utilize results from earlier studies in this study. It is important to study the topic in a broad context, with a large sample size and simultaneously from the points of view of employees in several different professions [16, 25].

This study is part of a larger research project, “detection and treatment of domestic abuse,” undertaken in the Department of Nursing Science at the University of Tampere and funded by the Academy of Finland (no. 109830, 2006–2008). The goal of this study is to produce information for developing the practices of several collaborative actors in the detection of and intervention in child maltreatment. The purpose of the study was to describe (1) employee competence in interprofessional collaboration, (2) how the perspectives of other agencies have been taken into account, and (3) the support received for collaboration in the detection of and early intervention in child maltreatment within the family.

### 2. Methods

#### 2.1. Instrument Development

The development of the instrument drew on the literature search conducted using the Linda, Medic, Cinahl, Medline, Psychinfo, EBM reviews, and British Nursing Index databases over the years 2000–2007. The UN Convention on the Rights of the Child [1] was also used as a basis for the development.

The instrument was first assessed by content experts (n = 7) who have developed collaboration related to the detection of and intervention in child maltreatment. The instrument, revised based on the expert appraisal, was then evaluated by experts (n = 3) with two professional qualifications working in different agencies. Pretesting was carried out with employees (n = 20) from one basic school within (Figure 1).

The scale consists of an eight-page questionnaire, where the domains of collaboration included the competence of the employees in interprofessional collaboration, taking the perspectives of other collaboration agencies into account, and support for collaboration [2, 9, 16, 26]. The attitude statements were rated on a 6-point Likert scale (1 = definitely disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = definitely agree).
Research permissions were obtained from the directors of day care, basic education services, and police in the city of Tampere and from the Research Permission Committee of health and social services. Ethical approval for the study was obtained from the Pirkanmaa Hospital District Ethics Committee (R07019H).

Tampere is the third largest city in Finland with a population of 207,866 in 2007. There were 35,629 youth and children under 18 years of age, which is 17% of the whole population. There were altogether 20,588 families with children in Tampere [27].

2.2. Data Collection. The basic group in the study consists of day care, basic education, social services, health care, and police personnel in the city of Tampere. The data were collected by collecting a stratified sample of 50% from units that work with children under the age of 18. A census of police officers was conducted because of the small size of the group [28]. The total sample consisted of 1,959 employees. The line managers of the work units distributed the survey forms to the personnel so that they would represent a diverse group of employees in the work community, including all professions, different sexes, different ages, different lengths of work experience, and both permanent and temporary workers. The data were collected during 15.3–13.9 in 2007. The survey forms were returned to the researcher in a closed envelope. A total of 914 questionnaires were received, giving a response rate of 46%. Forty-nine questionnaires were rejected.
because of missing data, as over 20% of the responses to a set of items were missing. As shown by the dropout analysis, the background characteristics of those who returned an incomplete questionnaire did not differ substantially from those included in the study. The survey achieved the principle of representativeness for all units. According to the loss analysis, the questionnaire achieved the principle of representativeness for all work units (Figure 1).

2.3. Statistical Analysis. A statistical analysis was performed using SPSS for Windows 18.0. If a questionnaire had less than 20% missing values \((n = 16)\), these were replaced by the mean of scores on collaboration variables.

A principal component analysis (PCA) was conducted in order to find out which statements measure similar properties. PCA showed that all items \((n = 13)\) correlated with at least one item \((r > 0.30)\). The number of principal components was limited to components with the eigenvalue of over one and with the variation of the explanation parts exceeding 5%. However, the large sample size may have caused the statistical significance. Nevertheless, the principal component analysis calculated the Pearson correlation coefficients for skewed distributions and for statements with ordinal scales, which may weaken the analysis. Items loading heavily (>0.40) on a component were included in the scale. The number of the principal components was tested with a result of an oblique promax rotation, the variables were loaded to only one factor and their content was meaningful. As a result of an oblique promax rotation, the variables were loaded to only one factor and their content was meaningful. Considering the subject of study, it is significant that the statements can correlate with each other. The commonalities of individual items ranged from 0.437 to 0.777, demonstrating that the variables measured the principal components fairly reliably [28].

Three principal components based on previous theoretical knowledge emerged. These were given names according to the item content: competence in interprofessional collaboration (5 items), taking into account the perspectives of other collaboration agencies (3 items), and receiving support for collaboration (5 items). The three principal components accounted for 59% of the total variance (Table 1).

With the principal component analysis, the summed scales were formed in order to examine the phenomenon holistically. Three summed scales were formed by adding up the items depicting each principal component and by dividing the sum by the number of items. This made the summed scales mutually comparable, although the number of items varied [28].

The internal consistency of the sum variables was examined by using Cronbach's alpha values. The values ranged from 0.602 to 0.830, and the total alpha value of 0.840 demonstrated that the instrument was internally consistent [28] (Table 1).

The distributions of respondent characteristics (gender, age, education, work experience at the present unit, total work experience, and employment status) were described using frequencies and percentages. The distributions of the three summed scales formed by using the principal component analysis for crosstabulation were reclassified into two classes (disagree = 1.0–3.4, agree = 3.5–6.0). This solution was supported by the fact that the observations fell into all of the categories. In the results section, the distributions of the items are described using the percentages of those who agreed and disagreed with an item. Additionally, we present the frequencies and percentages of those agreeing with an item by agencies in Table 3 because there were statistically highly significant associations between the agencies and the items. The associations between background information and the items were examined by using crosstabulation analysis, chi-square analysis, or Fisher's exact test, if the expected frequencies were too small. The significance level was set at <0.01 due to the large size of the data set [28].

### 3. Results

#### 3.1. Demographic Characteristics of the Respondents

The majority of the respondents were women. The age range of respondents was from 20 to 64 years, with a mean age of 43 years. The average amount of work experience was 15 years (range 1 month–42 years) (Table 2). Forty-eight percent of the respondents worked in day care, 17% worked in basic education, 16% in social service, 13% in health service, and 7% in police departments (Figure 1).

#### 3.2. Competence in Interprofessional Collaboration

The majority of the respondents (93%) had the competence to collaborate with other officials. The lowest ratings of their competence were given by health service employees \((P = 0.002, \phi = 0.140)\) (Table 3).

Eighty-two per cent knew what to do when collaborating with other agencies to detect child maltreatment. However,
employees in day care and basic education evaluated their collaborative competence as the weakest ($P < 0.001, \phi = 0.180$) (Table 3). Eighty-four per cent of permanent employees and 79% of contract employees knew how to collaborate with other agencies ($P = 0.002, \phi = 0.113$).

Three-fourths (74%) of the employees knew how to act when detecting child maltreatment. It is noteworthy that one-third of the employees in day care, basic education, and health services did not know what to do when detecting child maltreatment ($P < 0.001, \phi = 0.167$) (Table 3). Young respondents had the least knowledge and skills ($P = 0.006, \phi = 0.116$). Seventy-seven per cent of permanent employees and 64% of contract employees knew how to act ($P = 0.001, \phi = 0.121$).

Sixty-eight per cent of the respondents were also capable of acting independently when intervening in child maltreatment. The highest ratings of independent action in child maltreatment cases were given by social service employees and police officers ($P < 0.001, \phi = 0.229$) (Table 3). Employees were better able to act independently as they grew older ($P = 0.004, \phi = 0.129$). Eighty per cent of men and 66% of women ($P = 0.004, \phi = 0.097$) and seventy-one per cent of permanent staff and 57% of contract staff were capable of acting independently ($P = 0.001, \phi = 0.129$).

Half of the respondents (50%) had knowledge of the practices of others; health care employees had the least knowledge of the practices of others ($P < 0.001, \phi = 0.171$).

### 3.3. Taking into Account the Perspectives of Other Agencies in Collaboration.

Of those who had five years work experience or less, 2% did not appreciate the competencies of employees in other agencies ($P = 0.006, \phi = 0.124$).

Women (96%) were more accepting than men (90%) of the various perspectives ($P = 0.001, \phi = 0.109$) of other agencies, whereas police officers were the least accepting ($P = 0.002, \phi = 0.142$).

### 3.4. Receiving Support for Collaboration.

The majority (81%) of the respondents received support from other agencies in child maltreatment detection. However, one-third of those working in basic education and health services did not receive support from other agencies ($P < 0.001, \phi = 0.162$) (Table 3). Those who had a Bachelor’s-level degree received the least support ($P = 0.001, \phi = 0.136$).

The vast majority (90%) of the respondents received support from their own unit to detect child maltreatment. It is noteworthy that 30% of police officers did not receive support from their unit for detecting child maltreatment ($P < 0.001, \phi = 0.275$) (Table 3). The age of the respondent ($P = 0.001, \phi = 0.137$), total work experience ($P = 0.009, \phi = 0.119$), and work experience from the present unit ($P = 0.001, \phi = 0.146$) increased support. In addition, the more time had elapsed after graduation, the more support the respondent received ($P = 0.003, \phi = 0.128$). Nineteen per cent of men and 8% of women did not receive support from their unit ($P < 0.001, \phi = 0.124$). Those who spent less than half their working day (76%) working with children received less support than those who spent the entire day (94%) working with children ($P < 0.001, \phi = 0.228$).

Nearly all (94%) employees received support from their supervisors for interagency collaboration associated with child maltreatment. Health service employees did not receive support from the supervisor for interagency collaboration.

### Table 2: Respondent background characteristics and job-related background factors (n = 865).

<table>
<thead>
<tr>
<th>Background factors</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>747</td>
<td>(86)</td>
</tr>
<tr>
<td>Male</td>
<td>117</td>
<td>(14)</td>
</tr>
<tr>
<td>Missing data</td>
<td>1</td>
<td>(0.1)</td>
</tr>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>115</td>
<td>(13)</td>
</tr>
<tr>
<td>30–39</td>
<td>217</td>
<td>(25)</td>
</tr>
<tr>
<td>40–49</td>
<td>285</td>
<td>(33)</td>
</tr>
<tr>
<td>≥50</td>
<td>243</td>
<td>(28)</td>
</tr>
<tr>
<td>Missing data</td>
<td>5</td>
<td>(0.6)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No vocational qualifications</td>
<td>3</td>
<td>(0.3)</td>
</tr>
<tr>
<td>College-level vocational qualifications</td>
<td>288</td>
<td>(33)</td>
</tr>
<tr>
<td>Bachelor-level (postsecondary level/polytechnic degree)</td>
<td>182</td>
<td>(21)</td>
</tr>
<tr>
<td>Master-level (undergraduate/postgraduate degree)</td>
<td>385</td>
<td>(45)</td>
</tr>
<tr>
<td>Missing data</td>
<td>7</td>
<td>(0.7)</td>
</tr>
<tr>
<td>Work experience at the present unit in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤1</td>
<td>147</td>
<td>(17)</td>
</tr>
<tr>
<td>2–4</td>
<td>182</td>
<td>(21)</td>
</tr>
<tr>
<td>5–10</td>
<td>195</td>
<td>(23)</td>
</tr>
<tr>
<td>11–20</td>
<td>164</td>
<td>(19)</td>
</tr>
<tr>
<td>≥21</td>
<td>157</td>
<td>(18)</td>
</tr>
<tr>
<td>Missing data</td>
<td>20</td>
<td>(2.3)</td>
</tr>
<tr>
<td>Total work experience in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤5</td>
<td>160</td>
<td>(19)</td>
</tr>
<tr>
<td>6–15</td>
<td>282</td>
<td>(33)</td>
</tr>
<tr>
<td>16–25</td>
<td>230</td>
<td>(27)</td>
</tr>
<tr>
<td>≥26</td>
<td>145</td>
<td>(17)</td>
</tr>
<tr>
<td>Missing data</td>
<td>48</td>
<td>(5.5)</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent</td>
<td>684</td>
<td>(79)</td>
</tr>
<tr>
<td>Contract</td>
<td>173</td>
<td>(20)</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>(0.7)</td>
</tr>
<tr>
<td>Missing data</td>
<td>2</td>
<td>(0.2)</td>
</tr>
<tr>
<td>Time spent working with children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than half of work day</td>
<td>155</td>
<td>(18)</td>
</tr>
<tr>
<td>Half or more than half of work day</td>
<td>700</td>
<td>(81)</td>
</tr>
<tr>
<td>Missing data</td>
<td>10</td>
<td>(1.2)</td>
</tr>
</tbody>
</table>
Table 3: Employee perceptions of competence in interprofessional collaboration. Percentages of those agreeing with the item. Statistical differences between the fields were tested using the Pearson Chi-square test or Fisher’s Exact Test (n = 865).

<table>
<thead>
<tr>
<th>Competence in interprofessional collaboration</th>
<th>Day care (n = 411)</th>
<th>Basic education (n = 147)</th>
<th>Social services (n = 138)</th>
<th>Health services (n = 111)</th>
<th>Police (n = 58)</th>
<th>P value</th>
<th>Phi</th>
</tr>
</thead>
<tbody>
<tr>
<td>If necessary, I am capable of collaborating with other agencies</td>
<td>75%</td>
<td>76%</td>
<td>96%</td>
<td>75%</td>
<td>90%</td>
<td>&lt;0.001</td>
<td>0.140</td>
</tr>
<tr>
<td>I am capable of collaborating with other agencies in child maltreatment issues</td>
<td>90%</td>
<td>95%</td>
<td>99%</td>
<td>89%</td>
<td>98%</td>
<td>0.002</td>
<td>0.180</td>
</tr>
<tr>
<td>I know what to do when detecting child maltreatment</td>
<td>78%</td>
<td>77%</td>
<td>95%</td>
<td>81%</td>
<td>93%</td>
<td>&lt;0.001</td>
<td>0.167</td>
</tr>
<tr>
<td>I am also capable of acting independently when intervening in child maltreatment</td>
<td>62%</td>
<td>63%</td>
<td>88%</td>
<td>64%</td>
<td>86%</td>
<td>&lt;0.001</td>
<td>0.229</td>
</tr>
<tr>
<td>I am aware of work patterns in other units</td>
<td>47%</td>
<td>46%</td>
<td>69%</td>
<td>41%</td>
<td>50%</td>
<td>&lt;0.001</td>
<td>0.171</td>
</tr>
<tr>
<td>Consideration for the perspectives of other collaboration agencies</td>
<td>97%</td>
<td>99%</td>
<td>96%</td>
<td>99%</td>
<td>95%</td>
<td>0.280</td>
<td></td>
</tr>
<tr>
<td>I appreciate the competence of other employees in another field</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>98%</td>
<td>0.384</td>
<td>0.074</td>
</tr>
<tr>
<td>I accept the different perspectives of other agencies</td>
<td>97%</td>
<td>97%</td>
<td>93%</td>
<td>98%</td>
<td>86%</td>
<td>0.002</td>
<td>0.142</td>
</tr>
<tr>
<td>We have a common approach to collaboration in child maltreatment issues with other agencies</td>
<td>88%</td>
<td>85%</td>
<td>87%</td>
<td>84%</td>
<td>85%</td>
<td>0.721</td>
<td>0.049</td>
</tr>
<tr>
<td>Receiving support for collaboration</td>
<td>95%</td>
<td>90%</td>
<td>96%</td>
<td>80%</td>
<td>83%</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>I receive support from other agencies for child maltreatment detection</td>
<td>86%</td>
<td>71%</td>
<td>84%</td>
<td>73%</td>
<td>81%</td>
<td>&lt;0.001</td>
<td>0.162</td>
</tr>
<tr>
<td>I receive support from my unit for child maltreatment detection</td>
<td>95%</td>
<td>91%</td>
<td>96%</td>
<td>77%</td>
<td>71%</td>
<td>&lt;0.001</td>
<td>0.275</td>
</tr>
<tr>
<td>My supervisor supports inter-agency collaboration related to child maltreatment</td>
<td>96%</td>
<td>95%</td>
<td>97%</td>
<td>81%</td>
<td>95%</td>
<td>&lt;0.001</td>
<td>0.218</td>
</tr>
<tr>
<td>I am satisfied with the collaboration in my unit</td>
<td>93%</td>
<td>93%</td>
<td>97%</td>
<td>86%</td>
<td>83%</td>
<td>0.001</td>
<td>0.149</td>
</tr>
<tr>
<td>I have time for collaboration with other agencies</td>
<td>64%</td>
<td>52%</td>
<td>79%</td>
<td>42%</td>
<td>43%</td>
<td>&lt;0.001</td>
<td>0.235</td>
</tr>
</tbody>
</table>

| Receiving support for collaboration | 95% | 90% | 96% | 80% | 83% | <0.001 | 0.074 |
| I receive support from other agencies for child maltreatment detection | 86% | 71% | 84% | 73% | 81% | <0.001 | 0.162 |
| I receive support from my unit for child maltreatment detection | 95% | 91% | 96% | 77% | 71% | <0.001 | 0.275 |
| My supervisor supports inter-agency collaboration related to child maltreatment | 96% | 95% | 97% | 81% | 95% | <0.001 | 0.218 |
| I am satisfied with the collaboration in my unit | 93% | 93% | 97% | 86% | 83% | 0.001 | 0.149 |
| I have time for collaboration with other agencies | 64% | 52% | 79% | 42% | 43% | <0.001 | 0.235 |

(P < 0.001, φ = 0.218) (Table 3). Those with a Bachelor’s-level degree (89%) received the least support from their supervisor compared with those who had a Master’s-level degree (96%) and those with college-level qualifications (96%) (P = 0.007, φ = 0.127). Those who spent less than half their working day (87%) working with children received less support from their supervisor than did those who spent the entire day working (96%) (P < 0.001, φ = 0.145).

The majority (92%) of the respondents were satisfied with the collaboration in their own unit while the highest levels of dissatisfaction were reported by police officers (P = 0.001, φ = 0.149). Those who spent half or more than half their workday (94%) working with children were more likely to be satisfied with the collaboration in their unit than those who spent less than half (86%) their time working with children (P = 0.001, φ = 0.111).

Sixty per cent of the respondents had time for interagency collaboration. Social service employees had the most time for interagency collaboration (P < 0.001, φ = 0.235) (Table 3). Those who spent less than half (47%) of their workday with children had less time for interagency collaboration than those who spent half or more (63%) of their work day with children (P < 0.001, φ = 0.131).

4. Discussion

The purpose of the study was to describe employee competence in interprofessional collaboration, how the perspectives of other agencies have been taken into account, and the support received for collaboration in the detection of and early intervention in child maltreatment within the family.
4.1. Main Results. There was a statistically highly significant association between the respondent's field and *competence in interprofessional collaboration*. The highest level of competence in interprofessional collaboration was reported by social service employees and police officers. The result concerning social service employees was as expected since they are the key actors in maltreatment issues [29]. Accordingly, the lowest rating of skills was given by employees in basic education and day care, in other words those who meet children regularly everyday. The employee's individual and positive attitudes and willingness to collaborate are factors that affect interprofessional collaboration [11, 12, 26, 30].

According to the results of a study by Rae et al. [29], the knowledge of health care service workers regarding legislation prohibiting punitive violence varied significantly. Djeddah et al. [2] and Paavilainen and Flinck [3] state that employees in social services and health care should be more active and willing to engage in interprofessional collaboration. Permanent employees were more knowledgeable than contract employees about how to act when detecting child maltreatment. In addition, permanent employees were more independent than contract employees when intervening in child maltreatment. The results may have been affected by the strict secrecy clauses in Finnish health care and uncertainty about the legal possibilities and restrictions on collaboration [31]. Employees can also be required to take personal responsibility and show dedication to collaboration [17, 19].

Goebbles et al. [11], Cerezo and Pons-Salvador [16], and Rae et al. [29] emphasize that information on the detection of and intervention in child maltreatment is important to all employees, regardless of their specialty or level of education. This kind of competence in interprofessional collaboration is related to the effectiveness of collaboration in practice [12].

In this study, only half of those working in day care, basic education, health services, and police were aware of the methods used by other agencies. The result corroborates earlier findings in a study by Afza et al. [10] on health services, showing that the methods used in child welfare services were poorly recognized. In this case, there may be a risk that interprofessional competence is not utilized sufficiently [19]. The results of the present study are relevant, as Cleaver and Walker [9] and Green et al. [12], and Clarke [19] have shown that knowledge of the tasks, responsibilities and methods used by other professionals reduces mistrust and increases interprofessional action. The practical implementation of interprofessional collaboration requires joint discussion and learning both within work communities and between the employees of collaborating organizations [16, 32].

According to earlier studies, child maltreatment was not intervened in systematically and with determination [11], and therefore health care workers need training, change in attitudes, and simple tools for detecting and intervening in child maltreatment [16, 19, 33, 34].

The results agree with the study by Rae et al. [29] regarding the fact that the length of work experience has no effect on knowledge of child protection legislation and practices regarding punitive violence. In a study by Goebbles et al. [11] and McKenzie et al. [35], however, increasing work experience increased knowledge and practical information among health care workers.

There was a statistically highly significant association between the field of employment and *receiving support for collaboration*. Employees need support for the detection of and intervention in child maltreatment [16, 22, 36]. Women employees in social services and day care and employees who spent half or more of their workday with children received the most support. According to Chanmugan [31], all employees need support from the line manager and peer support from the work community and on several occasions, if necessary. The employees mostly emphasized details related to working correctly regarding ethics and legislation. This result agrees with earlier studies in that support from the superior [17] and the work unit [11] had a big influence on the collaboration in the detection of and intervention in child maltreatment. The most common sources of support were the supervisor and the employee's own unit. The amount of time spent working with children was also associated with the receipt of support from the supervisor and the work unit [16, 20].

The result is understandable, as the issues of detecting and intervening in child maltreatment are primarily discussed within the employee's own unit with familiar coworkers [11, 19]. On the other hand, the role of supervisors in the collaboration process should be studied more closely [26].

In this study, one-third of the employees in basic education and health services felt that they did not receive support from other agencies for detecting child maltreatment. The result is worrying because the possibility for consultation across organizational boundaries has been regarded as an important form of support when detecting maltreatment [9, 16, 31]. For example, in the study by Clarke [19], social services were an important collaboration partner for the school nurse.

In addition, the support received depended on legislation, operating practices, government support, and societal decisions [16, 25]. For example, the paediatrics committee on child abuse and neglect of the American Academy [22] recommends approving laws prohibiting the use of punitive violence. Some states now place an act of child abuse on the central registry only when the abuse is considered “serious.” Financial considerations and the legitimate fear of being overwhelmed by the number of abuse children has led some child protective services systems to construct a triage system whereby a child has to be in relatively imminent danger or seriously abused before there will be a response.

The results of this study show that social service employees had the most time for interagency collaboration. Similar results were obtained by Ödegård [30] in a study of children’s mental health care where employees used nearly half their working day on collaboration. It is clear that the development of good collaboration calls for time and discussions [12, 14, 25, 26, 37].

In this study, especially separate agencies and fields of employment emerged as hindrances to collaboration. The lack of shared models of thought and the small amount of collaboration may have affected the views of the respondents. In addition, different work tasks and professional insecurity in collaboration related to detecting and intervening in child maltreatment may have had an effect on the results, especially
in the responses of employees in day care, basic education and health care. According to the results of a study by Bunting et al. [37], in addition to joint interprofessional training, open and common discussion and sharing of experiences regarding interprofessional collaboration, as well as information on the job descriptions of collaborating partners, is needed to increase joint activities and efficiency. In difficult situations feelings and responsibility can be shared with others. Through interprofessional training and collaboration, employees would get support for detecting and intervening in child maltreatment. At minimum, the training should include the detection of signs of abuse, and when how, and where should abuse be reported [16, 20]. It would be useful to offer training on different occasions as basic, continued, and complementary training [37].

4.2. Reliability of the Study. Content validity was strengthened in a stepwise manner by expert assessments and preliminary testing. The alpha values for the summed scales ranged from 0.602 to 0.830. Alpha values of ≥0.70 can be considered relatively good for a new instrument. The summed scale “Taking into account the perspectives of other agencies” contained only three items, which may have contributed to the low alpha value [28].

Within a large sample, even small differences between groups or associations between variables can be statistically significant as determined by the chi-square analysis. Based on an assessment, a marked content-related association is called significant [28]. In this study, there was a significant association between the agencies and the items.

External validity was assessed on the basis of the sample, response rate, and representativeness of the data [28]. To increase the reliability of the study, the data were collected by drawing a stratified sample of 50% from each unit because the response rate was estimated to vary. The response rate (46%) may have been reduced by the employees’ perception of child maltreatment detection as not being the core task of their work, although the child welfare act [38] stipulates that child maltreatment detection is the responsibility of all employees. The comments given in the questionnaires mentioned the difficulty of the research topic as the reason for missing data. The scale did not include the response options “cannot say” or “does not concern me,” which may have contributed to the fact that some respondents returned a blank or partially completed questionnaire. Because of the missing data, altogether 49 questionnaires were rejected.

The number of respondents was large with regard to the target population. The sample size should be 10 per cent of the survey population to allow generalization of results [39]. The respondents (n = 856) represent 24% of all employees. The survey achieved the principle of representativeness for the agencies as the following percentages show: day care 24%, basic education 11%, social services 34%, health services 28%, and police 34%. The results of the study represent the study sample. This study does not give an explanation for the low response rates from basic education and health care services, but it does raise several further questions and present a topic for further research. The response rate may have been affected by the different backgrounds of workplace cultures and traditions in the respective lines of activities, as well as the professional role and the connection of the respondents’ core work tasks to child maltreatment. In the studies of Marijcke and Browne [23] and Safeguarding Children [13], the employees did not have the readiness, skills, and means to intervene in child maltreatment. Collaboration related to the detection of and intervention in child maltreatment usually begins when an employee becomes concerned and suspects maltreatment or when a family member reports it [11]. Basic education and health care services are central everyday environments in a child’s life where it is possible to identify maltreatment [3, 11, 16].

The comments led us to assume that employees in different fields of employment considered the research topic important. A number of questionnaires included a comment that the respondent does not have experience of detecting or intervening in child maltreatment, so their responses were based on an assumption of how they would act. This decreases the reliability of the study, as respondents may have responded in a socially desirable way [28]. In general, the respondents evaluated themselves as competent, but differences emerged between different agencies. The respondents were critical of how they would act, and therefore the use of self-evaluation is not a major problem.

5. Conclusions

We can conclude that the employees rated interprofessional collaboration fairly positively. The result corroborates the results of previous national and international studies in that the detection of and intervention in child maltreatment require employees to have competencies in interprofessional collaboration that transcend organizational boundaries. These results point to the need to develop interprofessional collaborative competencies for detecting child maltreatment especially among employees in day care, basic education, and health services, because these are the professionals that work with children on a regular basis.

More attention needs to be paid to hands-on collaboration. These results call for increased collaboration between different agencies, for example, by using mutual visits to get to know and better understand the work of others and to make contacts easier. Through regular meetings the common goal and aim can be crystallized for employees attending to the same families but working in different agencies/organizations. This could increase the dedication of the employees and increase their appreciation for and knowledge of the work of the other agencies.

5.1. Implications for Practice. The results can be utilized in developing and implementing shared training for different professions. It is possible to develop practical collaboration through interprofessional training. The training should focus on familiarizing the employees with the job descriptions of employees in other agencies/organizations and on discussing what interprofessional collaboration means to each individual employee and to different professions. The training should
discuss what the perquisites of interprofessional collaboration are and how it could be promoted.

A challenge for future research is deepening the knowledge on the topic by interviewing the employees, especially related to differences between the different lines of activities and low response rates. It would also be important to gain knowledge of the experiences of children and families. Using different research approaches and data collected from different agencies, it is possible to get a more versatile picture of the detection of and intervention in child maltreatment than by using only one research method. Further development of collaboration will benefit children and their families, as maltreatment will be detected at an early stage.

Disclosure

The research data of the paper has been analyzed with the SPSS Statistics software. The University of Tampere has been paid by the researcher for using their license for the program. The authors have no other connection to the SPSS software.

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References


Review Article

Primary Health Care: Comparing Public Health Nursing Models in Ireland and Norway

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Health of populations is determined by a multitude of contextual factors. Primary Health Care Reform endeavors to meet the broad health needs of populations and remains on international health agendas. Public health nurses are key professionals in the delivery of primary health care, and it is important for them to learn from global experiences. International collaboration is often facilitated by academic exchanges. As a result of one such exchange, an international PHN collaboration took place. The aim of this paper is to analyse the similarities and differences in public health nursing in Ireland and Norway within the context of primary care.

1. Introduction

The movement toward primary care as a model of health care service delivery was introduced 30 years ago and has been moving in that direction since then. It has been reiterated across international policy documents during this period [1]. The time for prevarication has passed and action is warranted. Public health nurses (PHNs) due to their public health orientation and guiding philosophy are acutely sensitive to any proposed changes in health policy underpinned by primary health care [2]. This is due to the fact that they work in the community and provide universal low threshold services guided by health promotion and disease prevention and their health outcomes are difficult to measure. Evidence indicates that a preventative approach to community-based health interventions reduces the use of acute hospital services, improves the management of chronic illnesses, and empowers clients to self-care [3]. The remit of PHNs encompasses nursing and public health; therefore, the focus is on primary, secondary, and tertiary prevention [4]. The aim of this paper is to discuss primary health and primary health care and analyse similarities and differences between Ireland and Norway in relation to geography, demography, and health status. The origins of public health nursing are presented. This is followed by an exploration of the different models and the merits and demerits of specialists and generalists’ roles and functions in both countries. The paper concludes by pulling together the salient points contributing to a greater insight to PHN practice in Ireland and Norway. The impetus for this paper came from an academic collaboration between the authors as a result of one authors’ (AC) Erasmus visit to University College Cork in 2012. The European Erasmus programme promotes educational exchanges between university students and staff. Ireland and Norway are participants in this programme. This visit presented an ideal opportunity to examine the similarities and differences of public health nursing and primary care in two jurisdictions. This paper will contribute to the discourse on public health nursing in the context of primary health care internationally.

2. Primary Health Care and Primary Care

Primary health care (PHC) as defined by the WHO in 1978 [5] is essential health care based on practical, scientifically sound and socially acceptable methods. Primary health care is considered to be both a philosophy and an approach to providing health resources. The approach is usually termed primary care (PC) and in Ireland is often used synonymously with “general practice” (GP). However, whilst PC incorporates GP care, it encompasses a wide range of health and personal
social services delivered by a variety of professionals and is seen as a first point of contact service [6]. Countries with more highly developed systems of primary health care tend to have lower health care costs. Norway was one of the first countries to adopt this model of health care. The organisation of primary care in Norway is decentralised to municipalities. In 1984, 430 local authorities were made responsible for financing and providing primary care services founded on social democratic values and funded by taxes and block grants [7]. It is much easier to support PHC reforms when growth in health expenditure is through prepaid systems than out of pocket expenditures [2].

In contrast, in Ireland Primary care was first proposed as a model of health care to be considered in the mid-1980s [8] but due to the poor fiscal economy, in essence, the first primary care strategy was not published until 2001. This strategy established a community-driven model designed to strengthen the capacity of services at primary care level. As a consequence, dependency on secondary can be minimized achieving increased accessibility to local primary care teams (PCTs).

Health care in Ireland is a two-tier system where public and private sectors exist. The public health care system is governed by the Health Act of 2004 [9], which established the Health Service Executive to be responsible for providing health and personal social services to everyone living in Ireland. The public health system, despite massive expenditure in recent years, has a number of on-going issues which could have an impact on primary care services. These include long waiting lists; over capacity on hospital beds; patients awaiting admission on trolleys in the A&E departments; moratorium on staff recruitment and staff shortages. Ireland’s two-tier health care system has failed in many respects to delivery adequate, fair, and equitable services to meet people’s needs [10]. Not all citizens in Ireland have free health care at the point of delivery as it is based on income. Many health care payment schemes operate such as the General Medical Services (GMS) card, Pay Related Social Insurance (PRSI), and drug payment scheme. About 39% of the population are covered by a medical card or a GP visit card [11]. In general, PHNs in Ireland deal with all children and adults with GMS. Eligibility for non-GMS adults is contentious but PHNs deal with these referrals on a case by case basis [12].

The reality of the number and composition of primary care teams in Ireland has yet to be realised. Approximately 600–1,000 primary care teams (PCTs) were envisaged by the primary care strategy to meet population needs [13]. Data from the Comptroller & Auditor General [14] suggest that there were 319 PCTs and 24 new primary care centres; however, Garthland [15] reported a figure of 411 teams, and a survey of general practitioners (GPs) reported that only 36% were part of a functioning PCT [16]. In Norway, the compositions of the PCTs are similar to Ireland with regard to the health care professionals involved. The large number, small size, and organisational models of Norwegian municipalities necessitate flexibility and intermunicipal collaboration in the smallest communities in order to provide functional interdisciplinary PCTs. As in Ireland, GPs work in private practices but are contracted by the municipalities to perform public health services. PHNs provide domiciliary home visiting services to all newborns and work mainly at health clinics and school health services, whereas in Ireland, PHNs are generalists with some specialism within child health. In Ireland, 22% of areas have a dedicated school PHN [12]. Norway is currently in the throes of a new major public health reform (Act of 2011) with the primary focus on prevention and early intervention [17, 18] and governed from local municipalities. A consequence of the new reform [18] with shorter hospital stays for mothers and babies after childbirth could influence their workload. The health system in Ireland, which is governed centrally by the Health Service Executive, is also under reform. This reform also includes a move towards universal health insurance which envisages equitable access to health services. Early hospital discharge in both countries has the potential to increase the need for PHNs services.

Norway is more advanced in their health reforms, and devolution of care in the community locally within a team is a key component of PC. However, there are challenges in maintaining professional individuality so that the clinical accountability of professions is not lost. The individual contribution of distinct professions to the team decision needs to be transparent. Reports to the government on public health work focus on coordination of services and not on professional groups [18, 19], so that now the focus is even more so on professional neutrality. Due to the nature of preventive and promotive work, it is difficult to measure the effects of PHNs’ work. Aging populations and lack of visibility of public health nursing in official documents provide challenges. In report no. 16, (Stortingsmelding, 2002-2003) the role of professions is toned down. This is illustrated by the following quote: “it’s important to focus on what has to be done in the municipality—not on who does it” [19]. Stenvoll et al. [20] compare this report with a similar public health document from 1993 and conclude that the focus on preventive institutions, such as child health clinics and school health services as well as professions working there, has been weakened. The trend towards professional neutrality is reiterated across current government reports. Reducing the visibility of public health nursing is not conducive to professional development and can mitigate against effective primary care. Effective primary care is more dependent on the context of care than the composition of teams. It ultimately reflects on all the determinants of health. Therefore, it is necessary to examine the health contexts of both Ireland and Norway.

3. Ireland and Norway: Geography, Demography, and Health

Ireland and Norway differ in geography and economic situation but have some similarities in relation to population statistics and public health challenges. Demography and vital statistics for Ireland and Norway are presented in Table 1.

Ireland is often called the “Emerald Isle.” The country is characterised by vibrant green fields, hedgerows, low plains, rugged coastlands, lakes, rivers, and islands. Climate in Ireland is mainly mild and humid, winter days are drizzly, cold, and short because of the Gulf Stream, and there is rarely snow. However artic conditions and snow in 2010
presented major challenges in Ireland for the delivery of health services. On the contrary, Norway is dominated by mountainous or high terrain, and the country is renowned for its Viking heritage, natural resources, and its long indented coastline and fjords. Climate and geography create challenges for an egalitarian provision of municipal health services and being a welfare state means, inequalities are less acceptable in Norway. The climate in the country differs from North to south, but winters are cold throughout.

Ireland is a member of the European Union (EU), is the third largest island in Europe, and is situated to the North West of Continental Europe. Politically Ireland is divided between the Republic of Ireland (ROI) (26 counties) and Northern Ireland (6 counties) which is part of the United Kingdom. Ireland has a population of 4,588,252 people; 1.2 million people live in Dublin city and county and the density of population is approximately 64.95 people per square km [21]. In Ireland, 535,393 people are aged over 65 years, but life expectancy is slightly lower for females 81.6 years and for men 76.8 years [22]. Overall the population of Ireland is relatively young, and birth rates are 15.81 births/1,000 population. Conversely Norway is not a member of the EU and borders on Russia, Sweden, and Finland. It has a similar population size of approx. 4.8 million but in contrast to Ireland, it is one of the most sparsely populated countries in Europe with only 15 inhabitants per square km. Most of the municipalities are small, and a quarter of the population lives in rural areas. Twenty-six percent of Norway’s population is under 20 years of age, and birth rates are 12.1 births/1,000 population. There are 742,000 aged over 65 years in Norway, and life expectancy for females in Norway is 83.4 years and 79 years for men and these rank among the highest in the world [23]. In terms of population structure, Ireland’s population is younger and still growing, whereas Norway’s has stabilised and their life expectancy is much greater.

The social, economic, and environmental conditions in which people live strongly influence health. There is a strong association between environment, ill health, chronic illness, and morbidity [24]; and Ireland has many health inequalities. For example, the life expectancy for the travellers (Ireland’s main minority ethnic group) is currently only 61.7 years consistent with life expectancy of general population in the 1940s in Ireland [25]. Not surprisingly, they were also less likely to report good health. Poverty levels are increasing and in 2010, 15.8% of the population (706,500) had incomes below €10,831 [26]. Ireland has the highest proportion of children in the EU (24.5%) [24], nearly 9% of these children live in families in consistent poverty and over 18% are at risk of poverty [27]. Mental health, suicide, and poor physical health and well-being are significantly higher in lower social classes and socially deprived areas [28]. The first longitudinal study on people aged over 50 years found that older adults have excellent health. However, it also found that those unemployed had poorer health [29]. There is a growing epidemic of obesity levels in both younger and older people [22, 30, 31]. Ireland has low breastfeeding rates, and the rates are more pronounced in lower socioeconomic groups. This is also the case in relation to low birth weight [32]. Current health services in Ireland favour the more well off, yet people who are less well off and socially excluded have poorer health and thus may be more in need of services [33].

Conversely Norway is one of the richest countries in the world, and there has been no increase in poverty in recent years [34]. There are fewer poor people in Norway compared with other countries, and poverty seems to be a temporary condition for most people. Immigrants from nonwestern countries are those most affected. The extensive nature of public welfare services in Norway ensures that poor people are seldom deprived of necessary living conditions [34]. Money can ensure the provision of services but cannot buy health, and Norway has a widening gap in issues of inequalities in health [35]. Norway has topped the UN’s annual ranking for national achievement in health, education, and income [36]. The general health of population in Norway is good but there is still a sizeable gradient in morbidity and mortality [37]. It is well recognized that early childhood years can directly and indirectly affect health in later life, and children’s living conditions are closely linked to their family’s socioeconomic status [38].

Norwegian health services experience many challenges in relation to aging populations, shortened hospital stay, heightened expectations, and an increasing dependency on expertise to solve problems [39]. Psychological problems are a major challenge for public health in Norway [19], and every third adolescent that is in touch with a Norwegian PHN has psychological problems [40]. Gambling addiction often coincides with other health and social disorders, and excessive on-line gaming amongst young people provides

| Table 1: Demography and vital statistics for Ireland and Norway. |
|----------------------|------------------------|
| **Ireland**          | **Norway**             |
| Population           | 4,588,252 million      | 4.8 million            |
| Over 65 years        | 535,393                | 742,000                |
| Life expectancy      | Female: 81.6 years     | Females: 83.4 years    |
|                      | Male: 76.8 years       | Males: 79 years        |
| Birth rates          | 15.81 births/1,000 population | 12.1 births/1,000 population |
| Infant mortality     | 3.2/1000 live births   | 3.5/1000 live births   |
| Under 20 years       | 27.5%                  | 26%                    |
| Density of population| 64.95 people per square km | 15 inhabitants per square km |
| Health spending      | 8.7% of GDP (under OECD average 8.9) | 10% of GDP (over OECD average) |
new challenges for their health and well-being. One in four pupils in Norway who start secondary education drops out and this can impact on health and life expectancy [38]. Conversely more recent data reported that more children in Ireland leave school early than children in Norway [41], and there is greater socio-economic gradient. There is an increase in reports of teenage suicides and some of these have been linked to cyber bullying, which makes the health needs of adolescents more of a public health priority [42].

Certain population groups in Norway have special health challenges such as those with long-term social problems, people living alone, immigrants, people with mental health issues, and children and young people at risk. Research has shown that ethnic groups in Norway have suffered ethnic discrimination [43]. Similarly Ireland faces many public health challenges in relation to health inequalities, health, aging populations, chronic illness, medical advances, shorter hospital stay, social factors (living alone, isolation, and poor social networks), and economic decline [22, 25]. Both Ireland and Norway are experiencing significant public health challenges in relation to growing levels of chronic illness-related to lifestyle factors [30, 38]. The health challenges of susceptible groups are relevant to PHNs’ work in the context of primary health care in both Ireland and Norway.

4. Public Health Nursing in Norway and Ireland

Community nurses in Norway were traditionally concerned with caring for the sick. School health services were introduced with the implementation of the School Act in 1860 [44], and the first mother and child health clinic was opened in 1911 [45]. The early development of Norwegian public health nursing services was influenced by the American model. In many communities, the public health nurse and doctor were the only public health professionals until the late seventies.

Norwegian PHNs are nurses with a specialist qualification in public health nursing. Their current tasks do not involve nursing care of the sick, that is, curative nursing. This care is provided by district nursing services and nurses in local institutions. PHNs in Norway are usually assigned a geographical area and provide universal services at child health clinics and school health services. They perform home visits and carry out immunisations and developmental screening; they also counsel and give advice to individuals and groups. Almost 100% of families avail of the services at child health clinics. There are 2069 PHNs employed in municipal family health clinics and school health services [46], and in Ireland there were 1702 PHNs employed in the Irish Health Service Executive [47]. Table 2 illustrates key similarities and differences related to education, organisational structure, remit, focus of care, and current challenges in public health nursing in Ireland and Norway.

PHNs in Ireland operate at the level of generalist nurses with a specialist qualification in public health nursing. Public Health Nursing similarly originated in the 1800s and because of historical links with Britain mirrored developments there. The origins of the service were more specialist in orientation, that is, district nursing and community midwifery. The model was specifically generalist since the 1960s, and this was recognised as a strength by the Commission on Nursing [48] who recommended a continuation of generalist geographic focus. However, there has always been an acknowledgement of the specialist versus generalist debate in community nursing. A number of reviews have taken place in Ireland, the most recent [12] of which reiterates the need to reexamine the organisational model for reform. In Norway, the tendency has been to move towards a specialised role in providing services for families and the young population, which will be discussed further in the next section.

Smith describes public health nursing as a nursing speciality that combines nursing and public health principles [49]. The individual-/family-based approach is the Norwegian PHNs’ strength, and PHNs have been criticised for not becoming more engaged in public health work at a community level [50]. Helseth [51] explicates, however, the continued importance of the PHN’s direct contact with individuals and groups. Primary preventative child health work is carried out mainly by physicians in the USA and mainly nurses in Western Europe, including Ireland and Norway. Eliciting and attending to parental concerns is a key element of effective developmental surveillance and is in line with international best practice [52]. It is acknowledged that there are significant gains from home visiting [53] and sound reasons for the service to remain universal. Universal and targeted child health intervention programs have been shown to improve maternal and child health and reduce inequalities in health [38]. There is a continued need for a universal service that identifies and facilitates the health needs of ordinary people [54, 55]. Specific measures of service effectiveness may be lacking but in terms of efficiency in the delivery of core health checks Irish PHNs have achieved an adherence rate of between 81 and 97% with the scheduled developmental checks [56]. The primary immunisation programme which is actively promoted by PHNs achieves uptake rates over 90% in all of the reporting districts and rates of 95% in 75% of reporting districts [57]. Similarly, immunisation coverage for children in Norway is between 92 and 95% (regardless of socio-economic groupings) with an increase from 2010 [58].

Information technology has provided Norway with an efficient national immunisation registry (SYSVAK) [58]. In one small area, good public health outcomes are being achieved in both countries. However, population outcome data is limited and is not conducive to promoting the reform of the PHN role. In contrast, public health measures have been far more successful in Norway, which has high breastfeeding initiation rates of 99% and duration 80% at 6 months [59]. Ireland has been less successful with an initiation of 46% and duration of 13% at 6 months [60]. Quality and accountability in primary care have been compromised by relatively poor investment in health care informatics and technology in Ireland [61].

Reform is contingent on the implementation of the recommendations of the National Health Information Strategy [62] to implement electronic health records and unique health identifier numbers. This is a particular requirement where child health is concerned.
Table 2: Public health nursing: key similarities and differences between Ireland and Norway.

<table>
<thead>
<tr>
<th>Education</th>
<th>Organisational model</th>
<th>Remit</th>
<th>Focus of care</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>1-year level 9 university postgraduate programme or 2 year Master programme</td>
<td>Decentralised to municipal level</td>
<td>Children, young people, and families</td>
<td>Prevention and promotion Egalitarian provision of and access to services</td>
</tr>
<tr>
<td>Ireland</td>
<td>1-year level 9 university postgraduate programme</td>
<td>Employed by the health services executive and geographically based</td>
<td>All age groups (cradle to grave) regulated by the department of health policy</td>
<td>Preventative and curative Generalist and geographically based home visiting</td>
</tr>
</tbody>
</table>

Bellman and Vijeratnam [63] caution that the benefits of developmental surveillance should not only be viewed in terms of the abnormalities detected, but also in terms of the support and reassurance to parents. Public health nursing services focus on health promotion and the provision of supportive counselling services. Supportive counselling provided by PHNs has been shown to be effective [64–66]. The focus in Ireland and Norway is also on disease prevention through immunisation programs, developmental screening, and subsequent referrals to other services. Use of specialised health services by children and young people increases with the length of parents education, whereas use of PHNs primary care health services at clinics and schools is more determined by need than social status [38]. Reasons for social inequalities in health can start in childhood; each individual factor may not be important but when these social factors are added up their negative effects can be significant [67].

The school health service has insufficient capacity in many of Norway's municipalities [38]. Not all children and adolescents receive adequate psychological care. It has been put forward that PHNs lack competencies in providing mental health services for this group [40]. Norway is currently concerned with providing specialised mental health services for children, young people, and families in their own communities [18], an area that is very underresourced in Ireland [68]. Many children with mental health problems need assistance from several services, and collaboration is vital. Psychosocial problems are an important focus for PHNs and there is a need for improved collaboration with PHNs on psychosocial, medical, and child protection issues [50, 51, 69, 70]. A recent Norwegian national survey has shown that mental health services are those missed most by communal primary care professionals [71]. Emotional and mental health care in schools is not a feature of the work of PHNs in Ireland where the focus is on immunisations and screening for vision, hearing, and growth [12]. Although emotional health is acknowledged as being vitally important by the HSE [72], it was found by the ONMSD [12] that the school immunisation programme takes precedence over this and indeed there are also unmet targets in relation to screening.

Elo and Calltorp [73] developed a health promotive and preventive action model (HPA model) for illustrating the wide range of public health services provided by PHNs. The model was constructed in order to illustrate wherein the process of health-ill health and at what developmental stages PHNs provide health care services. An adapted HPA model (Figure 1) is used to illustrate current Norwegian and Irish public health nursing practice related to the health-ill health continuum. Norwegian PHNs’ services for children and young people can be described as being health promotive, supportive, health protective, diagnostic, and therapeutic. The Irish PHNs generalist services include curative care and encompass other services not included in the Norwegian PHNs remit. All models have limitations. The HPA model provides a framework and cannot capture all factors that influence public health nursing service provision.

5. Advancing Public Health Nursing

The previous three sections explored how public health nursing in Ireland and Norway has evolved. However, its not as if future PHN service delivery models were not previously considered. For example, there has always been an acknowledgement of the specialist versus generalist debate that exercises those involved in community health nursing. The journal Public Health Nursing republished an article [74] that first appeared in 1916. This article has as a core message that the debate should not be specialist or generalist; rather the model should be specialist and generalist. Brainard [74] recognised the fact that communities have different complexities and requirements which she believed should ultimately determine the best model and that there is a place and need for both models. She used the example of general practitioner and medical specialist to argue that they supplement each other’s work rather than duplicating it.

McKenna et al. [75] were the only authors to study professional and lay views of generic and specialist roles in the island of Ireland. Each jurisdiction in Ireland has very different models of nursing in the community, that is, 11 different specialist community nurses in Northern Ireland (NI) and one generalist PHN in the Republic of Ireland (ROI). Although there are not as many specialist nurses in the community, public health nursing in Norway has a long tradition of specialist practice and thus is like NI in that respect. It would appear that Norway has achieved a good specialist/generalist balance in terms of community nursing. McKenna et al. [75] study concluded with the view that there were too many specialists in NI and too few in
the ROI, and both were “heading for an imbalance” (page 544).

In the ROI it would appear that the day of imbalance has arrived as there have been recent moves to seriously consider moving public health nursing in a specialist direction [12, 47]. In response to the problem of “duplication of effort” identified by the Office of the Nursing & Midwifery Services Director [12] and the Institute of Community Health Nursing [76]; it was recommended that “consideration must be given to matching skills with the health needs of the population in a more integrated manner” (page 19). A more pressing imperative comes in the wake of a number of child protection reports which highlighted that child welfare and family needs were not prioritised. The current generalist role of PHNs is seen as a serious disadvantage from a child and family perspective as the curative role constantly takes precedence [47]. This National report [47] indicated that illness-related nursing care was prioritised over child health and welfare.

The Minister for Children and Youth Affairs [47], in the task force report document, recommends that the PHNs who provide the child and family part of the service should be directly employed by the Child and Family Support Agency (CFSA). Efforts to avoid fragmenting the service could be achieved by coloocating PHNs with the local health service. The precise detail of how this change in governance would be configured has yet to be explored. However, the ICHN has canvassed the views of their members in relation to four potential options and found broad support for the need to change the current method of service delivery [76].

McKenna et al. [75] found that while more specialist nurses are required in the community in the future, this has the potential to increase role conflict between nurses and other community professionals. This issue was raised previously for Norway which faces similar challenges regarding coordination and collaboration. Nevertheless, it is suggested by McKenna et al. [75] that colocating of professionals from different organisations can create an arena for staff to work across professional boundaries, to recognise their joint role as supportive professionals, and thus to enable families to find their way through the challenges they face [55, 69].

A further area of concern in Ireland is the schools service provided by PHNs. According to the ONMSD [12], there is a general lack of direction and focus in the school health programme. Local health office areas vary in relation to whether or not they have a dedicated school health nurses. The ONMSD [12] acknowledge the potential importance of schools nurses in influencing the current and future health of the school going population. However, their findings indicate “an imbalance in the activities undertaken by schools nurses, in that immunisations tend to dominate possibly at the expense of health promotion activities” [12]. While large clinical caseloads are adversely affecting delivery of valuable population health initiatives, Irish PHNs are open to redressing “the balance of their roles in this regard” [12, page 27].

In contrast, the school health service in Norway can be seen as a continuation of the clinics’ services and has a focused remit in health promotive and preventative work. Unlike Ireland the Norwegian PHN has office hours at the school and is available for pupils, (primary and postprimary) school administration, and collaborators at certain times of the week. Borup and Holstein’s [77] Danish study concludes that school nurses play an important role for pupils in susceptible situations. However, Claussen’s [78] doctoral thesis showed that PHNs have a deep knowledge of schoolchildren’s health that is not used to its full potential. This finding indicates the difficulties in getting the model right in health systems that seem to have everything in terms of funding and policy commitment. This point is just as relevant to Ireland in the Celtic tiger era where there was money and a commitment to PHC [1] but reform was not delivered.

It is much easier to support PHC reforms when growth in health expenditure is through prepaid systems than out of pocket expenditures [2]. Even though the Norwegian population enjoys good health, inequalities continue to exist in certain social groups [35, 37]. Norway’s strategy to tackle
social inequalities in health is to address the root causes of these inequalities. The current policy is geared specifically towards parts of the population where both the challenges and potential for improvement are greatest [79]. Equity is a specific goal that is top-down and government owned. The underpinning concept is a move from a health-specific to a coordinated strategy [17]. The strategy is to combine universal measures and general welfare with strategies that target the most vulnerable [80]. Coordination of services can, however, be time consuming and provide new challenges for PHNs regarding professional boundaries and co-location of services. Outcomes of collaboration can also be difficult to measure.

6. Conclusion

Ireland and Norway have many similarities from a geographic and demographic perspective. Both countries have similar sized populations, but economically there are vast differences in relation to poverty, life expectancy that is lower, and inequalities that are higher in Ireland. A fundamental feature of primary care relates to equity of access to health services at the point of contact for all. However, health services are more accessible to high income earners in Ireland but universal health care is proposed. Differences identified relate to policy, economics, and public health achievements. A commitment to primary care in the view of the authors requires that health services be available free at the point of access. In the case of Ireland this will require a fundamental societal shift demanding a reexamination of the concept of equality and openness to higher taxation to fund health services. Nevertheless, both countries have a strong commitment to WHO reforms towards primary care, and PHNs have been identified as key players in the delivery of PC services, particularly primary prevention. The Norwegian PHN service model is specialist and aligned with a public health agenda. Ireland has been generalist to date but there is evidence of some movement in a specialist direction. On a very basic level, Norway has far more PHNs devoted specifically to public health issues, with one client group, compared with PHNs in Ireland providing services to all client groups with a preventative and curative remit. While Norway is a wealthy country and has realised an enviable PHN model, Ireland failed to achieve that and deliver on primary care reform, when money was available. Strategy embedded in public health policy similar to Norway is necessary to ensure that Public Health Nursing in Ireland is aligned with a public health agenda. It is, however, important to remember that despite Norway’s wealth and specialist PHN model, everything is not perfect and current reforms may not provide the answer to complex problems. To quote the WHO (2008) [2, page viii] “in moving forward, it is important to learn from the past and, in looking back, it is clear that we can do better in the future.”

References


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