Facilitating Changes in Perinatal Smoking

The Impact of a Stage-based Workshop for Care-providers in British Columbia

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ABSTRACT

Objective: To determine the impact of stage-based smoking cessation workshops for perinatal care-providers.

Methods: A one-day workshop was designed and piloted with perinatal care-providers in Comox Valley, British Columbia. Dissemination to eight other communities followed. Pre- and post-questionnaires were collected from 270 care-providers. Clients (n=115) were interviewed after contact with a care-provider.

Results: Workshops increased care-provider knowledge ($p<0.0001$), confidence to address smoking with clients ($p<0.0001$), and perceived ability to help clients across the stages of change ($p<0.0001$). There was an increase in use of the model ($p<0.0001$) by care-providers, with 86% reporting changing their work with perinatal clients and 75% applying it beyond that setting. A significant shift in client readiness to change occurred during the pilot ($p=0.001$) and dissemination ($p=0.013$). Eighty percent of dissemination clients reported altering smoking behaviours as a result of intervention and 36% made at least one attempt to quit. Client satisfaction was high. Spin-off benefits included increased community collaboration, and capacity.

La traduction du résumé se trouve à la fin de l'article.

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In Canada, approximately 30% of women in the childbearing period are smokers. Estimates are higher for teens and women with low incomes.¹ During pregnancy, 27% of women continue to smoke and 15.8% attempt to quit.² The literature suggests that quit rates can range from 2-20%.¹

In the Comox Valley, care-providers (e.g., nurses, perinatal educators, outreach workers) met to discuss concerns about women smoking during the perinatal period and their uncertainty about how to effectively address this issue. In response to these concerns, a group of care-providers and clients, the Perinatal Advisory Committee (PAC), adopted a new approach to perinatal smoking. This approach incorporated community development principles and the stages of change model,³ and focused on enhancing continuity of care. Subsequently, a workshop for care-providers was developed to enhance their ability to more effectively address smoking with perinatal women. The adult education literature views workshops as an appropriate format for developing skills and competencies in a defined content area.⁴ This format has been found to enhance knowledge, thinking skills, attitudes and values.^{4,5}

The effectiveness of smoking cessation materials tailored to pregnant women has been evaluated in several randomized trials and these materials have out-performed standard materials in short-term evaluations of quit rates.⁶⁻⁸ However, no programs have tailored materials to motivational readiness. There is some evidence that stage-tailored interventions can be more effective.⁹ Research also suggests that self-help/minimal intervention strategies for smoking cessation may be the preferred way smokers stop and can approximate success rates of more formal programs, at lower cost and greater access to relevant populations.¹⁰ Therefore this workshop utilized a stage-tailored approach and resource for clients entitled, 'Stopping When You're Ready'.¹¹

The purpose of the evaluation was to determine the impact of the workshop for perinatal care-providers. Specifically, it examined the impact of the workshops on care-providers' knowledge, confidence, and use of the stage-based approach to smoking with their clients. It also examined the secondary impact on client smoking behaviours, and the perinatal community.

PROJECT PLANNING AND WORKSHOP DEVELOPMENT PROCESS

PILOT

PROVINCIAL DISSEMINATION

Figure 1. Study Design of the Perinatal Smoking Project

METHODS

Study design (see Figure 1)

Two semi-structured focus groups were conducted with perinatal women ($n=9$) and seven with lay and professional care-providers ($n=41$). Data from the focus groups informed workshop development. A one-day workshop was developed and piloted three times in the Comox Valley and then disseminated to other BC communities. Sampling was purposive. Eight communities that met preset criteria and represented different geographical locations were selected. Workshop participants in each community were solicited using brochures, posters, and word of mouth.

A pre-experimental evaluation design was used. Data were collected from care-providers by questionnaire prior to the workshop, immediately after, and between 2 and 4 months following. Care-providers recruited consenting clients and collected pre-intervention data during their initial contact with the client. Researchers col-

lected post-intervention data using semi-structured telephone interviews between 1 and 3 months post-contact. A semi-structured focus group or telephone interview was conducted with stakeholders to explore the impact of the workshop on their perinatal community. Stakeholders varied among communities and were representatives of the organizations involved in implementing the workshop, such as perinatal community networks and health authorities.

Data collection

The care-provider questionnaire was modified from an existing instrument.¹² This instrument consisted of questions assessing the nature of their contact with clients, previous training, knowledge and application of the stages of change, and confidence in addressing smoking with perinatal clients. The post-workshop questionnaire also assessed intention to change and satisfaction. Participants were asked to rate their levels of knowledge, confidence, satis-

faction, and intention to change on 5-point Likert scales. Nature of contact was assessed using categorical and open-ended questions.

Client smoking status was assessed pre-intervention using a short-form staging algorithm^{13,14} because a validated tobacco use questionnaire used during the pilot severely limited client recruitment. Post-intervention, the staging algorithm, open-ended questions about smoking behaviour, and self-reported quit attempts were used.

During the pilot a stakeholder focus group explored the purpose of the project, outcomes, successes, key lessons, and insights. During dissemination, telephone interviews were used to explore the impact of the workshop in each community ($n=8$) related to collaboration, continuity of care, and sharing of information. It also explored local barriers and facilitators to workshop implementation and satisfaction with the dissemination project support staff and materials.

TABLE I

Means, Standard Deviations and Test Statistics for Knowledge, Confidence, and Use of the Stages of Change Model During Pilot and Dissemination Phases

Variable	Pre-test (T1) Mean	Post-test (T2) Mean	Follow-up (T3) Mean	Overall Test Statistic and Significance	Post hoc Comparison	Post hoc Statistic
Knowledge of the Stages of Change model (pilot)	2.18 (1.04)	3.88 (0.65)	3.81 (0.79)	$\chi^2=74.99$ $p<0.05$	T1 – T2 T1 – T3 T2 – T3	0.0001 0.0001 0.4438
Knowledge (dissem)	2.09 (1.10)	3.62 (0.73)	3.73 (0.71)	$\chi^2=143.77$ $p<0.0001$	T1 – T2 T1 – T3 T2 – T3	$p<0.00001$ $p<0.00001$ $p=0.0802$
Uses of the Stages of Change Model (dissem)	1.69 (1.11)	3.44 (1.27)	N/A	$Z=-4.312$ $p<0.0001$	N/A	N/A
Satisfaction with ability to address smoking with perinatal women (pilot)	2.33 (0.82)	3.42 (0.90)	3.69 (0.93)	$\chi^2=59.24$ $p<0.05$	T1 – T2 T1 – T3 T2 – T3	$p<0.0001$ $p<0.05$ $p<0.05$
Confidence in ability to address smoking with perinatal women (dissem)	2.87 (1.00)	3.70 (0.74)	3.70 (0.80)	$\chi^2=56.44$, $p<0.0001$	T1 – T2 T1 – T3 T2 – T3	$p<0.0001$ $p<0.0001$ $p=0.6310$

Figure 2. Care-provider confidence in helping women in the various stages of change: pilot (n=66)

Analysis

Quantitative data were analyzed using SPSS-PC. Descriptive statistics were displayed for comparison. Friedman 2-way ANOVA's were used to determine if there were significant differences in values over time. When significant differences were found, post-hoc comparisons were made using Wilcoxon matched pairs test with an accepted significance level of 0.0167 set using the Bonferroni Correction of Multiple Comparisons.¹⁵

Content and thematic analyses were used to analyze qualitative data. The number of responses categorized within a theme was used as an indication of importance.

RESULTS

Care-providers

There were 270 care-providers who completed pre- and post-workshop evaluations over two project phases (see Figure 1). For both phases, 51% of workshop participants

were nurses. Over two thirds were community/public health and the remainder were acute care/clinic nurses. Other care-providers included perinatal educators, outreach and family support workers, counsellors, nutritionists, dental workers, early childhood educators, administrators, and midwives. Of participants in the dissemination phase (n=204), 90% had direct contact with perinatal women who smoke and most saw up to 15 smokers a month. Ninety-one percent of participants received training related to smoking and perinatal women in the previous 2 years. Approximately 40% reported 'always' addressing smoking with clients and 35% reporting addressing it 'some' to 'most' of the time.

Means for knowledge and use of the stages of change model, satisfaction and confidence related to addressing smoking are displayed in Table I. Means for confidence with clients across the stages of change at pre- and post-test are displayed in Figures 2 and 3. Following the workshop, there were significant increases in care-providers' knowledge and use of the stages model, confidence addressing smoking with clients, and confidence in helping clients in different motivational stages (see Table I; Figures 2 and 3). In both phases, increases were maintained at follow-up.

The majority of participants shared what they had learned at the workshop with co-workers and others (pilot 79%, dissemination 86.6%). Approximately 70% of participants in both phases applied what they learned with clients other than perinatal

smokers and with non-clients. Facilitators and barriers to care-providers' work with perinatal women are displayed in Table II. The most prevalent facilitators cited were having a supportive personal attitude, having specific information, raising the issue, providing resources, and assessing client stage. The most prevalent barriers were time, care-provider attitude and appropriateness of the resource.

Clients

Overall, 147 clients consented to participate and completed the staging algorithm. Of these, 115 clients were interviewed at follow-up. Thirty-two clients were not available due to changes in residence, missing contact information, out-of-service telephones, or lack of response.

Clients in the dissemination phase had a mean age of 25 years (range 15-38 years), two thirds were smoking for 6 years or more, and over half (56%) were in the pre-contemplation or contemplation stages. Almost half of clients (46%) in the pilot were also in these stages. Seventy-one percent of the clients received the intervention from a public health nurse.

There were significant differences in client stage of readiness to quit smoking between initial and follow-up assessments during the pilot ($z = -3.37$, $p = 0.001$) and dissemination phases ($z = -2.52$, $p = 0.012$). A higher percentage of clients were in preparation and a lower percentage were in precontemplation and contemplation following intervention.

Self-reported changes in smoking behaviour, sharing of the resource and levels of satisfaction with the care-provider and resource are summarized in Table III. The most prevalent reported result of intervention was a reduction in the number of cigarettes smoked. Seventeen percent of clients in the pilot and 6% in the dissemination had quit at follow-up. Eighty-three percent (pilot) and 80% (dissemination) maintained their quit status from baseline to follow-up. In the dissemination phase, 40% shared the written resource with others – primarily (75%) friends or partners.

Stakeholders

Several themes related to impact emerged from the focus group following the pilot. These themes were: the involvement of a broad group of stakeholders, building a

Figure 3. Care-provider confidence in helping women in the various stages of change: Dissemination Phase (n=113)

TABLE II

Facilitators and Barriers to Care-providers' Smoking Cessation Work with Clients

Facilitator / Barriers	No. of Responses: Pilot	No. of Responses: Dissem.	Example of Quotes Within the Theme
Facilitators			
Supportive personal attitude	n/a	36	"Letting them know I will support...but not demand they quit..."
Specific information	n/a	29	"it is easier now because I have something concrete to work with such as identifying her stage"
Bringing up the issue	n/a	19	"in precontemplation, listen, reflect, but keep raising the issue..."
Giving resources	n/a	19	"having booklets available gives them a chance and is non-threatening"
Assessing client stage	n/a	15	"note what stage they are at and take appropriate action"
Methods for engaging	n/a	15	"get clients to talk about the positive aspects before even considering the negative"
Type of contact	n/a	12	"review the resources with the client slowly over weeks"
Listening	n/a	6	"provide the opportunity for clients to verbalize about why they smoke"
Client receptivity	n/a	2	"women have shown interest in 'Stopping When You're Ready' "
Barriers			
Booklets not appropriate	–	12	"booklets are not as useful for people who have no intention of quitting"
More time / contact is needed	18	7	"time constraints during visits due to presence of other clients"
Could not comment	–	6	"haven't had enough experience with sufficient numbers of clients to comment"
Client readiness	8	5	"depends on the openness of the client"
Care-provider attitude	21	8	"fear of client rejection and anger"; "I seem to have a lot of trouble remembering to ask about tobacco"
Care-provider knowledge	5	0	"need more practical experience and training"
Evaluation	–	1	"evaluation consent forms intimidate the clients"

supportive environment in the community, providing common ground, and enhancing sustainability.

Of the workshop organizers in the dissemination phase, four of nine (44%) reported unexpected spin-offs for them-

selves and their community. Spin-offs included increased visibility and credibility, planting a seed for a smoking cessation workgroup, bringing people together and strengthening ties. Five of nine indicated that spin-offs occurred but were expected.

TABLE III

Summary of Reported Changes in Smoking-related Behaviours and Client Satisfaction Between Pilot and Dissemination Phases

Variable	Pilot Phase (n=35)	Dissemination Phase (n=80)
% reporting at least one quit attempt	20% ^{ll}	36%
% reporting having quit at follow-up	17% ^{ll} **	6%
% maintaining quit status from pretest	83% (n=12)	80% (n=10)
Clients reporting changes other than quitting as a result of intervention (%)	45% (n=29)	80% (n=75)
• Reduced # of cigarettes	11/12	46/64
• Unsuccessful quit attempts	1/12	13/64
• Changed where they smoked (e.g., outside)	3/12	11/64
• Changed lifestyle patterns conducive to smoking (e.g., delaying first cigarette)	1/12	7/64
• Avoided smokers/smoking situations		4/64
• Used lower nicotine cigarettes		3/64
• Did not buy cigarettes		2/64
• Continued to talk / read about change	1/12	1/64
• Changed attitude	1/12	
Satisfied with care-provider*	90% (n=29)	96% (n=78)
Perception that care-provider was understanding†	85% (n=29)	99% (n=78)
Respondents indicating that the resource was helpful‡,§	79% (n=28)	97% (n=65)

* Includes all ratings of 3-5 satisfied to very satisfied

† Includes all ratings of 3-5 understanding to very understanding

‡ Includes all ratings of 3-5 helpful to very helpful

§ Some individuals had not read the booklets

^{ll} Based on semi-structured interview responses

^{ll} includes quit at 3 months.

** half of these attributed quitting to the intervention

Eight interviewees felt that organizing the workshop enhanced collaboration between organizations and individuals in their communities. Specifically, organizing the workshop increased networking and communication. For example, one interviewee highlighted enhanced connections between public health, First Nations health, and prenatal educators. Interviewees had not evaluated the impact of the workshop on their communities' ability to deliver consistent perinatal smoking advice. Some indicated that the workshop provided information and a common, useful tool.

DISCUSSION

The evaluation was designed to add to practitioners' functional knowledge of the phenomena they deal with, smoking during the perinatal period, and to be easily implemented within the pattern of constraints imposed by the setting.⁴ Therefore, methodological decisions were based upon availability of resources, the context of the health delivery setting, the nature of the client group (at-risk women with well-established smoking habits) and concerns of care-providers. Consequently, the results should be viewed in light of a number of limitations including the lack of a comparison group, the length of the measurement

period and the lack of physiological or observational evidence of changes in client or care-provider behaviours.

Care-provider impact

This workshop led to increases in knowledge of the stages, confidence to address smoking and help clients in various stages, use of the model in practice and sharing with co-workers. This finding is consistent with other adult education literature.^{4,5} It is notable, however, that time with clients was consistently cited as a barrier despite training and the provision of a resource.

Client impact

The intervention is best described as self-help/minimal intervention.¹⁶ The contexts within which care-providers applied the counselling and materials varied and fidelity was not assessed. There was no evidence that any clients had contact with more than one trained care-provider during the study and half were precontemplators or contemplators at pretest. Regardless, the quit rate was similar to those of other public health interventions.^{6,7} Reported quit attempts in this study were higher than the 15.8% reported in Canada.² This finding, plus the significant shifts in motivational readiness, qualitative reports of shifts in smoking behaviours attributed to contact

with a care-provider and high client satisfaction lead us to conclude that this intervention was appropriate and perhaps effective with this client group. This project supports previous research on stage-tailored and minimal strategies.^{6,9}

The delivery of the intervention within a broader perinatal context provided access to 'harder to reach' clients, with over half entering the study as precontemplators or contemplators and two thirds having long-term smoking habits. Additionally there was some potential for extended access as many clients shared the resource with others.

Stakeholder involvement

This workshop created an opportunity for community development.¹⁷ Planning and implementation involved many stakeholders and enhanced connections between agencies and health professionals. These processes, typically associated with health promotion, are linked with increased capacity to address health issues within a community.¹⁸

Overall, this project represents the efforts of health promotion workers to enhance the capacity of the system to deliver and maintain smoking cessation interventions with perinatal women. Hawe, Noort, King and Jordens¹⁸ assert that efforts to enhance the capacity of a system have the potential to prolong and multiply health effects, thus representing a value-added dimension to the health outcomes that any particular program is capable of achieving. This evaluation provides some evidence of value added in the communities and illustrates the potential of this approach to multiply health gains.

CONCLUSIONS

This workshop should be considered as a viable option for increasing the capacity of care-providers to deal with perinatal smoking. 'Stopping When You're Ready' also appears to be an acceptable and influential resource for perinatal women. Further research should compare this resource with other self-help/minimal intervention strategies and extend follow-up. Finally, this work only touched on the impact of the workshop on community capacity and continuity of care, but supports building measures of capacity into evaluations.

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RÉSUMÉ

Objectif : Déterminer l'influence d'une conférence, à l'intention du personnel soignant, sur l'arrêt du tabac chez les femmes enceintes.

Méthode : Nous avons conçu un atelier-pilote d'une journée, qui a été mené par des soignants périnataux dans la vallée de Comox en Colombie-Britannique, puis étendu à huit autres collectivités. Deux cent soixante-dix participants ont rempli des questionnaires avant et après l'atelier. Les clientes (n = 115) ont été interviewées par un participant à l'atelier.

Résultats : Les ateliers ont accru les connaissances des soignants ($p < 0,0001$), leur ont permis de parler du problème de la cigarette avec leurs clientes avec beaucoup plus de confiance ($p < 0,0001$) et leur ont donné la possibilité d'accroître leur aide tout au long des stades du traitement ($p < 0,0001$). Il y a eu une augmentation significative de l'utilisation du modèle ($p < 0,0001$) par les soignants : 86 % ont déclaré un changement dans leur travail avec les clientes périnatales, et 75 % ont appliqué ce modèle au-delà du cadre. On a constaté une évolution significative de l'ouverture des clientes au changement à l'étape pilote ($p < 0,0001$) et durant les ateliers ultérieurs ($p = 0,013$). Quarante-vingt p. cent des clientes des ateliers ultérieurs ont indiqué que leur utilisation du tabac avait changé en raison de l'intervention, et 36 % au moins ont essayé d'arrêter de fumer. La satisfaction des clientes était très élevée.

Les Journées annuelles de santé publique 18-21 novembre 2002

Les Journées annuelles de santé publique (JASP) sont de retour pour une 6^e édition sous le thème « **Construire sur du solide** ». Du 18 au 21 novembre 2002, professionnels, médecins, chercheurs, intervenants sociaux, infirmières, cadres et autres acteurs interpellés par les questions de santé publique sont attendus en grand nombre au Centre des congrès de Québec pour participer à cet événement annuel de formation et de partage des connaissances désormais incontournable.

Le thème choisi souligne l'importance, pour la santé publique, de fonder ses actions sur des données solides. Plusieurs questions essentielles seront abordées :

- Comment utiliser des données probantes pour agir efficacement?
- Comment composer en situation d'incertitude quant à la direction à prendre?
- Comment mieux arrimer la recherche avec les besoins des décideurs et intervenants?
- Comment générer des informations de qualité pour évaluer les interventions?

Tous les détails concernant les Journées annuelles de santé publique sont disponibles sur le site Web de l'événement au www.inspq.qc.ca/jasp. Le programme officiel y sera déposé à la fin du mois d'août.

Les JASP sont organisées par un consortium formé de partenaires pour lesquels la santé publique est une préoccupation de premier ordre : l'Association des CLSC et des CHSLD du Québec, l'Association des médecins spécialistes en santé communautaire du Québec, l'Association pour la santé publique du Québec, les Directions de santé publique, l'Institut de la statistique du Québec, l'Institut national de santé publique du Québec et le ministère de la Santé et des Services sociaux du Québec.

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