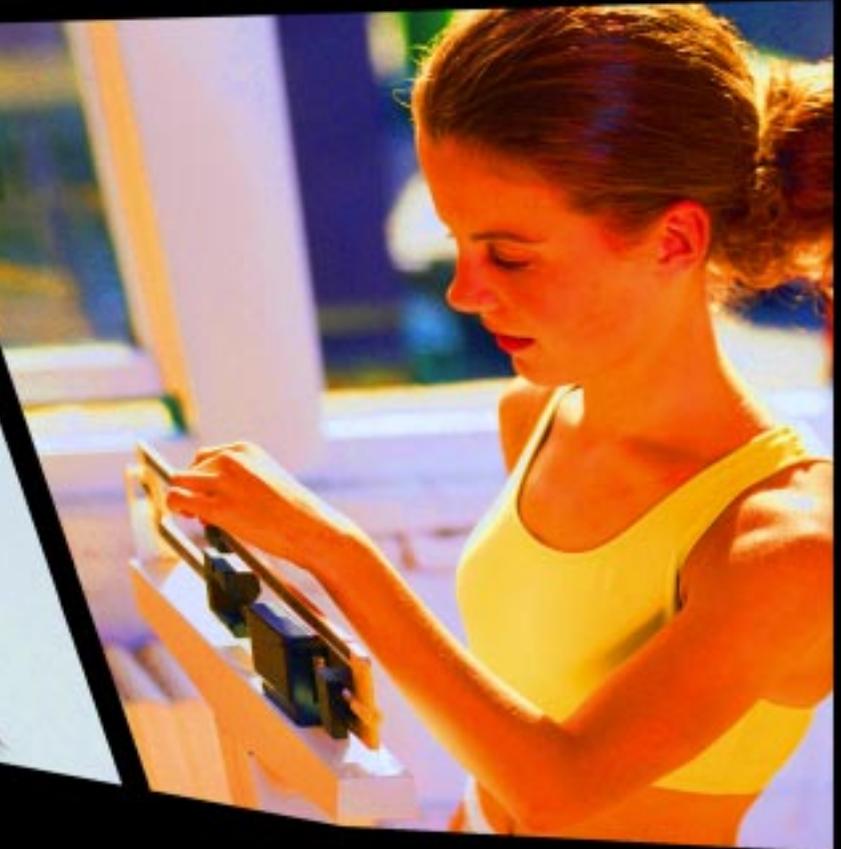




British Columbia
Centre of Excellence
for Women's Health

Hosted by the British Columbia Centre of Excellence for Women's Health



Teenage Girls and Smoking: A Research Agenda

WORKSHOP REPORT

| Nov. 30 - Dec. 1, 2001 |

Chan Centre for Family Health Education
Children's and Women's Health Centre of BC
Vancouver, British Columbia

Co-Sponsored by: Atlantic Centre of Excellence for Women's Health
Canadian Women's Health Network
Working Group on Women Tobacco



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Teenage Girls and Smoking: A Research Agenda Workshop Report

BACKGROUND INFORMATION

Burden of Illness

Results from the Canadian Tobacco Use Monitoring Survey undertaken by Health Canada in the last three years reveal that cigarette smoking is a significant problem among girls in Canada. In 1999, 2000, and 2001, teenage girls aged 15 to 17 years of age were more likely than boys of the same age to indicate that they currently smoke (Table 1). Further, among adolescents aged 18 to 19 years, the prevalence rate of smoking among boys has been steadily decreasing over the last three years while the rate among girls has appeared to rise slightly. In fact, the age group 18-19 among girls is the only category where smoking prevalence has not declined in the past three years. Sex and gender differences are crucial in understanding the significance of this problem, and indicate that girls, compared to boys, may be developing new and more damaging patterns of smoking quite different from historical patterns..

In addition, results from the 2000 Canadian Tobacco Use Monitoring Survey demonstrate that girls start smoking at an earlier age than boys (12.9 years versus 13.3 years). Similar data are not available for the years 1999 and 2001.

Table 1

Percentage of adolescent girls and boys reporting current smoking: Results of the Canadian Tobacco Use Monitoring Survey (CTUMS), 1999, 2000, and 2001 (first six months).

	CTUMS 1999	CTUMS 2000	CTUMS 2001
Girls			
15 to 17 years	26%	25%	23%
18 to 19 years	32%	31%	33%
Boys			
15 to 17 years	20%	19%	16%
18 to 19 years	36%	31%	28%

Similar trends have emerged among adolescents in several other industrialized countries. Further, the rising prevalence of smoking among girls and women has been recognized as a serious matter on an international level. In May 2001 the World Health Organization urged countries to take action “to prevent a tobacco epidemic among women and girls.” Directly related to increases in smoking among women over the past decades, heart disease is now the number one killer of women in Canada and the United States. Further, tobacco is the leading cause of cancer deaths in women and men in Canada and the United States. This suggests that it is imperative to develop effective prevention and cessation strategies targeted at teenage girls before long-term smoking patterns for adulthood are established.

Current Knowledge

The current knowledge on girls and smoking in the following four areas will be summarized below: Health Consequences, Nicotine Dependence, Smoking Cessation/Prevention, and Determinants of Smoking.

Health Consequences

Smoking is a major cause of cardiovascular disease in women and evidence suggests that smoking is a stronger risk factor for CVD than it is for males. Adolescents who smoke show early development of coronary artery disease and abnormal lipid levels – possible precursors of heart disease. Teens who smoke and take oral contraceptives experience higher blood pressure and lipid levels, precursors for CVD.

Females may be more susceptible to early-onset chronic obstructive pulmonary diseases, and women smokers are more likely to develop asthma than men smokers. Females are more susceptible to the carcinogenic effects of cigarettes on their lungs. Young girls are more susceptible to delayed lung growth and lower lung function than boys as a result of smoking.

Both active and passive smoking among girls and teens pre and during puberty is related to breast duct maturation and the development of later breast cancers. In addition, women and girls who smoke are at increased risk of reproductive health problems such as infertility, anovulation and eventual early menopause, as well as lower bone density and more hip fractures, compared to women who don't smoke. Specifically, research is needed on the effects of nicotine on egg maturation in teen girls.

Other shorter-term effects include an increase in coughing and phlegm production, decreased physical fitness, and a greater number and severity of respiratory illnesses. Teen smokers demonstrate early signs of periodontal degeneration and lesions in the mouth that may be precursors to oral cancers. Teen smokers, compared to their non-smoking peers are more likely to report nervousness, depression and sleep problems. Finally, smoking is associated with other health damaging behaviours including using alcohol and drugs and engaging in high-risk sexual behaviour.

Nicotine Dependence

In studies investigating gender differences in nicotine dependence in adolescents, girls who smoke are more likely than their male counterparts to report nicotine dependence. Additionally, girls require fewer cigarettes than boys to become dependent on nicotine and report greater difficulty in being able to quit or cut down on their smoking. Greater sensitivity to nicotine in girls has been attributed to their lower body weight and slower metabolic clearance of nicotine from their body compared to boys.

Both adolescents and women are particularly vulnerable to becoming nicotine dependent compared to adults and men. Adolescents and women are more likely to report experiencing a variety of dependency symptoms including withdrawal symptoms, tolerance, using more nicotine than intended, failing to quit smoking, and more persistent health problems. Further, due to higher

sensitivity to nicotine, adolescents experience higher rates of dependence than adults at the same level of usage.

Smoking Cessation

In a comprehensive best practices review of youth smoking cessation programs spear-headed by the Youth Tobacco Cessation Collaboration in 2000, there was no clear evidence of an effective approach to smoking cessation in youth. Only cognitive-behavioural approaches to cessation demonstrated some promise of efficacy. However, since the review did not include a gender-based analysis of the evidence, there is no evidence of the efficacy of any smoking cessation approach in reducing smoking in girls. Similar conclusions were reached in the U.S. Surgeon General's report on Women and Smoking (2001).

The appropriateness of Nicotine Replacement Therapies (NRT; e.g., nicotine gum, transdermal, nicotine patches, nicotine nasal sprays, oral nicotine inhalers) as a cessation tool with special populations such as adolescents and pregnant girls/women is debated. In pregnant girls/women, nicotine poses increased health risks (e.g., neurotoxicity) to the fetus. The controversy in prescribing NRTs to adolescents stems from the lack of an adequate tool for measuring nicotine dependence in this population. The possibility exists that NRTs may inadvertently result in an increase of nicotine in adolescents' bodies thus increasing dependency or even creating nicotine dependency that may not have existed previously.

Smoking Prevention

Few studies have investigated gender differences in the effectiveness of smoking prevention approaches targeted at youth. In the handful of studies stratifying their results by gender, the reported findings have been conflicting. The same approaches to smoking prevention (school-based, non-school-based, and mass-media campaigns) have yielded different results in different studies with some showing greater effectiveness among girls and others greater effectiveness among boys.

The following smoking prevention strategies have been found to be correlated with decreased smoking in adolescent girls: restricting access to tobacco through merchant education and instilling policy changes regarding tobacco sales to minors; teaching refusal skills and other more general personal and social skills to girls; and media campaigns using dissonance-arousing appeals. However, more research is needed to identify strategies that yield consistent results.

Determinants of Smoking

The following factors have been identified as being linked consistently to an increased risk of smoking among adolescent girls: having a parent who smokes; having a friend who smokes; being more attached to their friends than their parents; scoring higher on rebelliousness or risk-taking; not being as interested in school; having less knowledge of the negative health consequences of smoking; having a positive image of smokers; using cigarettes to control their weight.

Gender differences in the determinants of smoking among adolescents have been identified. Girls are more likely than boys to perceive that smoking will help in controlling their weight and their negative moods. Additionally, girls are more likely than boys to perceive their smoking as an act of rebellion.

Process

A three-day workshop was hosted by the British Columbia Centre of Excellence for Women's Health on November 29, 30 and December 1, 2001 in Vancouver, British Columbia. The object was to reflect on the current knowledge base and develop a research agenda to be used by the Institute of Circulatory and Respiratory Health, the Heart and Stroke Foundation of Canada, and other Canadian Institutes of Health Research for research programming activities. Specifically, these activities will be aimed at developing effective knowledge generation in smoking prevention and cessation strategies for teenaged girls. Twenty-five individuals from Canada and internationally representing diverse disciplinary backgrounds (e.g., sociology, psychology, epidemiology, nursing, medicine, human kinetics, marketing) and sectors (e.g., community researchers, academics, policy makers, representatives from not-for-profit organizations, aboriginal people and government), participated in the workshop.

The format of the workshop involved individual presentations in each of the following areas: *Health Consequences of Smoking in Girls, Nicotine Dependence/Addiction, Smoking Cessation, Smoking Prevention, Determinants of Smoking, The Role of the Media, Socio-Economic Determinants of Smoking in Girls, Maintaining a Smoke-Free Status, Policy and Advocacy Issues*. Individual presentations were followed by both individual responses and/or group responses to the issue under debate. The content of the presentations and responses included an overview of current knowledge in each of these areas, gaps in knowledge in each area, critical research questions, and a list of methodological, ethical, and other issues to be considered when designing and conducting research with adolescent girls.

Prior to this 2-day session was a public lecture on Thursday, November 29, 2002 presented by Dr. Amanda Amos from the University of Edinburgh in Scotland entitled *Branding Freedom: Smoking and Young Women, An International Perspective*. This lecture was funded through the New Frontiers Program and through the British Columbia Women's Hospital and Health Centre Foundation.

RECOMMENDATIONS

This workshop resulted in a rich, lively discussion and brainstorming of the issues relevant to research on teen girls and smoking. Throughout the two-day workshop, two significant themes emerged as being important to incorporate in all research investigating tobacco use in girls:

1. *Integration and mainstreaming of sex and gender into all tobacco-related research across the four CIHR pillars plus policy research*
2. *Integration of a developmental approach to the study of smoking in girls and teenaged girls.*

In addition to the two above-mentioned themes, the workshop participants identified key priorities needing to be addressed in any research program investigating tobacco use in girls. Four priority areas of research emerged through the discussions:

1. *Research on sex-differentiated (biological) effects of tobacco use on girls*
2. *Integration and consideration of the social context in the study of smoking in girls*
3. *Research focussing on non-smoking teen girls*
4. *Research on the effects of tobacco policies on girls*

Each Key Theme and Priority Area of Research will be described briefly and examples of appropriate research questions will follow each description.

Key Themes

Key Theme #1: *Integration and mainstreaming of sex and gender into all tobacco-related research across the four CIHR pillars plus policy research*

In order to develop effective policy and programs and treatments that meet the needs of girls and women, it is imperative that sex and gender be integrated into all future tobacco-related research. In this way, biologically based sex differences will be determined between boys and girls and specific to girls. This knowledge will give important direction to understanding immediate and adult female morbidity and mortality patterns due to smoking. The integration of a gender analysis into tobacco related research will offer insights into differences in social and cultural pressures, and attitudes and responses between boys and girls and specific to girls that affect initiation, maintenance and cessation issues and responses to advertising and policy.

Examples of Strategies:

- Re-analysis of existing data (including surveillance data) to explore gender and sex differences
- Training on integrating sex and gender into all tobacco research
- Integration of sex- and gender-based tobacco research into addictions research

Key Theme #2: Integration of a developmental approach to the study of smoking in girls

Participants agreed that a developmental or life course approach to studying smoking in girls would result in a greater understanding of the interaction between developmental phases and health effects of smoking, smoking cessation outcomes and effective prevention strategies.

Examples of Research Questions:

- What are developmentally appropriate approaches for smoking prevention and smoking cessation for girls and boys?
- What are the differences in smoking behaviour, smoking determinants, and smoking cessation among early, mid-, and late adolescence in girls?
- What are the differential short and long term health impacts of smoking based on the developmental phase when girls start smoking and when they stop smoking (e.g., child, teenager, young adult, etc.)? Similarly, when girls and teen girls are exposed to ETS?

Priority Areas of Research

Research Priority #1: Research on sex-differentiated (biological) effects of tobacco use on girls

The long-term health effects of smoking on women are outlined in the U.S. Surgeon General's Report on Women and Smoking (2001), but some of the shorter-term health effects of smoking on girls remain unknown (e.g., breast development and breast duct maturation processes, lung development and growth, endocrine effects, nicotine dependence patterns). Additionally, further research on the effects of combining tobacco with other substances such as alcohol, Prozac, contraceptives, and other practices, such as disordered eating, is necessary.

Examples of Research Questions:

- How does smoking interfere with nutrition/food uptake in girls? How can nutritional supplements be used as a smoking harm reduction tool with girls?
- What are the combined health impacts of cigarette smoke and other substances (e.g., alcohol, cocaine, marijuana, Prozac) in girls?
- What are the interactions between contraceptives and smoking in girls?
- How does smoking and ETS affect breast development in girls?
- What are the health effects of nicotine replacement therapies on pregnant women and adolescents?
- How can short-term health consequences (e.g., delayed lung growth, yellow teeth, wrinkles) be used appropriately in cessation tools with girls?
- What are the endocrine effects of smoking in girls?
- What is the evolution of nicotine dependence in teenagers and how is it sex-specific and/or gendered?
- How is nicotine dependence defined and measured in girls?

Research Priority #2: Integration and consideration of the social context in the study of smoking in girls

Workshop participants agreed that to fully understand smoking in girls, there is a need to understand the broader social context and sub cultures of girls' lives. In general, participants felt that more research is needed into understanding girl/youth sub-cultures. This would include the consideration of girls' individual environment (e.g., self-esteem, beliefs about and attitudes toward smoking, education, etc.), personal environment (e.g., family, relationships, peers, etc.), and socio-economical environment (e.g., tobacco promotion, media, price, ethnicity, access to tobacco products, etc.).

Examples of Research Questions:

- What are the perceived benefits of smoking for girls? (i.e., what motivates girls to smoke and keep smoking?) What activities would provide an alternative to smoking for girls (e.g., physical activity)?
- How can a girl successfully quit smoking if her parents smoke at home and/or her partner and friends also smoke?
- How are smoking and smoking patterns defined and measured in adolescents and what are the sex and gender differences in smoking patterns?
- How do power relations (between girls, boys, policy makers, researchers, etc.) affect smoking in girls?
- How can the tobacco control movement appeal to girls?
- How can lessons from the tobacco companies' gendered approaches be utilized in understanding and tapping into girls' culture.

Research Priority #3: Research focusing on non-smokers

The majority of adolescents do not smoke. An understanding of what factors in their individual, personal, and socio-economical environments influence their decision to maintain their non-smoking status (or to not move from experimentation to regular smoking) may help with the development of effective smoking prevention and cessation strategies.

Examples of Research Questions:

- What are the protective factors for maintaining non-smoking status?
- Where do non-smokers currently get reinforcement for their behaviour? How can non-smoking behaviour be reinforced in girls? How can non-smoking be marketed as "cool" in girls?
- What kind of activities in a community will support non-smokers?

Research Priority #4: Research on the effects of tobacco policies on girls

Tobacco policies in Canada are intended to impact broadly the smoking prevalence and trends among Canadians by restricting and limiting access to tobacco products, and by controlling the sale, promotion, and distribution of tobacco products in Canada. This broad approach has been criticized (e.g., Greaves & Barr, 2000) for overlooking the consequences of tobacco control policy on a

variety of sub-groups including adolescents or low income women. Little is known about the effects of tobacco policies on girls, but there is evidence to suggest that some tobacco control policies may negatively impact the health some sub-groups (see Greaves & Barr, 2000 for a review).

Examples of Research Questions:

- How are tobacco control policies experienced by girls? What relationship is there between policy changes and prevalence in girls?
- How do girls experience tobacco control policies differently than boys? What are the gender differences in reactions to anti-smoking tobacco advertisements? How effective are “fear campaigns” by the government in preventing smoking in girls? What are the gender differences in the perceptions of “healthier” cigarettes (e.g., “mild”) and brand selection?
- How do smoke-free areas contribute to social exclusion in girls?

MODELS FOR FUNDING

We propose three models of funding that would be appropriate for the study of smoking and adolescent girls: 1) Partnership Funding; 2) Network Funding; and 3) Interdisciplinary Health Research Teams.

Partnership Funding

In a partnership funding model, the Institute of Circulatory and Respiratory Health would provide matching funding to research endeavours supported by one or more other organizations sharing common concerns about the health care issue being investigated. For example, in the case of teenage girls and smoking, a collaboration between the ICRH, Heart and Stroke Foundation, the Canadian Working Group on Women and Tobacco, the International Development Research Centre (IDRC), and the International Network of Women Against Tobacco (INWAT) could lead to the development of a virtual Centre for International Research on Girls, Women, and Tobacco.

Network Funding

In order to maintain the momentum of the network initially developed through the New Frontiers Program, the ICRH could offer on-going funding to further develop resources and research programs in key areas of interest to the ICRH and its partners, such as girls’ and women’s smoking. For example, this funding could be used to maintain a database of researchers, programs, research findings, and other resources pertinent to the study of the questions of relevance. This funding could also facilitate in-person meetings of the network on an annual basis and would allow for more frequent, on-going discussions through mechanisms such as video-conferencing. These resources would contribute to proposal development and collaborative team building in Canada around the issues of girls, women and smoking.

Interdisciplinary Health Research Teams

Funding opportunities for Interdisciplinary Health Research Teams (IHRT) would allow researchers from different disciplines and sectors to pool their expertise, perspectives, and resources to address girls and women's smoking. For example, in this model, IHRT would be comprised of a minimum of five individuals and would involve at least three of the four CIHR pillars, three different organizations, and the representation of at least three different disciplines.

TRAINING AND PERSONNEL

The training and personnel needs are the following: one Post-Doctoral Fellowship, plus an annual workshop in sex and gender issues in tobacco research for both new and established tobacco researchers. Tobacco research needs more trainees and established researchers versed in sex and gender differences. Connected to the virtual Centre of International Research on Girls, Women and Tobacco would be an annual post-doc in any discipline and training grants and workshops for new and established researchers in tobacco.

BRIDGING THE FOUR CIHR PILLARS

As described above, a mechanism for bridging the four CIHR pillars may be for the ICRH to commit funding for research programs that involve Interdisciplinary Health Research Teams. Individuals from various disciplines, institutions, and sectors participated in this workshop and the benefits of conducting interdisciplinary research were discussed. For example, participants recognized the value of learning about and applying methodologies from other disciplines to enhance their own research. An IHRT would allow for original and innovative collaborations that would enhance the understanding or resolution of the health issue under study.

An important dimension of tobacco research is policy research, which can be considered as a fifth pillar in tobacco research for constructing IHRTs.

KNOWLEDGE TRANSFER AND TRANSLATION

The importance of bridging research and practice was raised on several occasions during the two-day workshop. Knowledge transfer and translation is an important component for the research programs suggested above. While academic publications are a key means for dissemination, it is as crucial to translate into practice, program development, clinical guidelines, policy, media strategies and lay publications. The Centres of Excellence for Women's Health Program (CEWHP) has developed a knowledge transfer strategy that targets individuals and organization in key sectors including academics, service providers, community researchers, policy/decision makers and government representatives at regional, provincial, and federal levels. Research findings are published in a series of reports appropriate to a variety of target audiences, (e.g., peer-reviewed journal articles, non-peer reviewed reports for academic audiences, short reports in lay language, full reports for policy makers, etc.).

To enhance distribution of these reports, the Centres use a variety of strategies. For example, reports are available for downloading or ordering through each Centre's web site; notices of new reports are posted on the women's health listserv and faxed to contacts representing various sectors; the CEWHP publishes research findings on a quarterly basis in the Research Bulletin; and each Centre periodically hosts public lectures highlighting research findings.

All of these strategies are appropriate for research on teen girls and smoking. In addition, it was suggested that knowledge from the wider substance abuse field and wider adolescent girls' health field could be applied to the study of smoking in girls. This could be accomplished by collaborating with individuals from a variety of sectors such as researchers, service providers, community researchers, and policy makers. Finally, it is important to present the information in effective and receptive ways to teen girls and their mentors, parents and advocates. Again, established mechanisms such as Adolescent Health Discussion Group at the BCCEWH could be the conduit for creating and transmitting such information.

OPPORTUNITIES FOR INNOVATION

One of the critical areas needing to be addressed in the study of tobacco use in girls is the identification of appropriate research methods and methodology for studying girls. There are several critical methodological issues that need to be addressed in the design and implementation of tobacco research. In particular, consideration of sub-populations such as Aboriginal girls, low-income, low literacy and Francophone teens are integral to conducting tobacco research. A key consideration for research on girls includes the question of what are the appropriate methods in studying cigarette smoking in girls? (e.g., Participatory Action Research? Qualitative methodology? Mixed methods? Diverse methodology? Quantitative methods?)

Below are examples of opportunities for innovative approaches to studying girls and smoking.

Examples of Methodological Considerations

- How can a girl-centered approach to tobacco research, policy, prevention, and cessation be defined and developed?
- Which methods/theories/models can be applied from the larger substance abuse field to study and understand smoking behaviour, smoking prevention, and smoking cessation in girls? For example, is the harm reduction model (i.e., smoking fewer cigarettes per day) an appropriate model for smoking cessation with girls?
- How do power relationships and social inequities between the researchers and participants affect research findings?
- How are socio-economic status, culture and ethnicity measured and how are they related to girls' smoking?
- How can girls be involved in designing and participating in research on girls, so that the sub cultural issues are adequately addressed?
- How can surveillance systems regarding tobacco use in Canada be extended to include under 15 year olds?

INCORPORATION OF ETHICS INTO RESEARCH PROGRAMS

Some key ethical issues related to the study of tobacco use in girls were raised during this workshop. There is a clear need to develop ethical guidelines for conducting research with adolescent girls and boys in general. Further, ethical issues associated with studying genetic predispositions to nicotine dependence in sub-groups were discussed. In addition, concerns about the potential for the stereotyping, marginalization, and/or stigmatization of sub-populations were expressed. Finally, questions were raised regarding a need to shift the focus of tobacco control/prevention efforts from negative images of smokers (i.e., de-normalization) to positive images of non-smokers (resulting in the de-stigmatization of smokers). Stigmatization itself is potentially a contributor to poor health.

NEW FRONTIERS PROGRAM FUNDING PROCESS

Feedback on the New Frontiers Program Process

We were very pleased with both the process and outcome of the New Frontiers Program. The only setback to the process was that invitations to our workshop were sent to participants shortly before the events of September 11, 2001. As a result, there were a few key individuals who, understandably, chose not to attend the meeting in person. If further funding were obtained to maintain the network created through the NFP process, these individuals would be invited to participate.

Recommendations for Further Development

The New Frontiers Program provided our Coordinating Group a unique opportunity to bring together individuals from diverse backgrounds, disciplines, and sectors knowledgeable about the issues surrounding the study of teen girls and smoking. This, in itself, resulted in the creation of a brand new network of individuals all dedicated to developing and promoting research on girls and smoking. It is our hope to maintain the momentum of the network created through the New Frontiers Program funding. This could be easily achieved through further, minimal funding from the ICRH.

Recommendation #1 for Further Development

Our first recommendation to the ICRH is to provide further funding to maintain the networks created through the New Frontiers Program.

Our workshop participants expressed a great deal of enthusiasm and commented on the value of establishing an interdisciplinary and multi-sectoral network of researchers, service providers, and policy makers interested in the issue of girls and smoking. Participants discussed the mutual benefit of sharing experiences, methodologies, and expertise, especially in the context of applying knowledge from the wider substance abuse field to tobacco research.

Recommendation #2 for Further Development

Our second recommendation to the ICRH is to provide funding for a virtual Centre for International Research on Girls, Women and Tobacco in partnership with other interested organizations. There is an obvious need to do this as no focal point on this topic exists to date. This would extend the health of the network and allow for its expansion, in addition to acting as a focal point for project and proposal development in girls, women and tobacco in a national and international context

Recommendation #3 for Further Development

Our third recommendation to the ICRH is to require sex and gender based analysis of its funded projects and in their reported findings to continuously add to the knowledge surrounding the influence, or lack thereof, of sex and gender in its research programs.

Benefits of the New Frontiers Program

This workshop on Teen Girls and Smoking was a critical preliminary step in addressing the internationally-recognized epidemic of smoking among girls and women. Very little work has been done previously to identify research, programs, and models directly relevant to girls and smoking. Through the New Frontiers Program funding, we were able to assess the state of the field and conclude that few resources are available for comprehensively addressing research and policy on tobacco use in girls. We were also able to identify key areas of new knowledge requirements, issues regarding integration of knowledge regarding sex and gender issues, and new methodological and ethical concerns key to the development of this area. The New Frontiers Program allowed us to identify priorities for research on girls and smoking across pillars, disciplines and sectors. In addition, it allowed a national network to form within an international context. It demonstrated that Canadian researchers could play a pivotal role in this topic, by advancing knowledge and methods to benefit both Canada and other countries.

CONTACT INFORMATION

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APPENDIX A

Project Leader and Coordinating Group Members

Project Leader

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Coordinating Group Members Continued...

Coordinating Group Members Continued

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APPENDIX B

Workshop Agenda

**Teenage Girls and Smoking:
A Research Agenda
November 29 to December 1, 2001**

Unless otherwise noted, all sessions will be held at:

**Chan Centre for Family Health Education
Children and Women's Health Centre of British Columbia**

(important note: NOT the Chan Centre at UBC)

Room 3113, 2nd floor

4480 Oak Street

Vancouver, B.C. V6H 3V4

Unless otherwise noted, breakfast, lunch, and snacks will be served in:

Room 2108, 1st floor

Thursday November 29, 2001

Location: Chan Centre Auditorium

As above

7:30 pm Welcome and Introduction, Dr. Lorraine Greaves, British Columbia Centre of Excellence for Women's Health

Keynote Address*, Dr. Amanda Amos, University of Edinburgh

Branding Freedom: Smoking and Young Women, An International Perspective

*open to the public

Friday November 30, 2001

8:30 – 9:00 Registration and Continental Breakfast
9:00 – 9:40 Welcome, Introductions, Objectives (*Lorraine Greaves, Elizabeth Whynot, Patti Hunter*)

9:40 - 10:00 **The Canadian Institutes of Health Research** (*Carol Amaratunga*)
10:00 -10:15 **Health Consequences of Smoking** (*Renee Cormier*)
10:15-10:30 Discussion / Identification of Key Research Questions

10:30 –10:45 **Break**

10:45 – 12: 15 **Nicotine Dependence / Addiction**
Presentation: *Joy Johnson (10 minutes)*
Responses: *Joan Bottorff (10 minutes)*
Jennifer O’Loughlin (10 minutes)
Discussion / Identification of Key Research Questions (*60 minutes*)

12:15 – 1:30 **Lunch**
*BC Centre of Excellence for Women’s Health
BC Women’s Hospital and Health Centre
E311-4500 Oak Street, Vancouver, BC*

1:30 – 2:45 **Smoking Cessation**
Presentation: *Chris Lovato (10 minutes)*
Responses: *Nancy Poole(10 minutes)*
Kendra Smith(10 minutes)
Discussion / Identification of Key Research Questions (*60 minutes*)

2:45 – 3:00 **Break**

3:00 – 4:30 **Smoking Prevention**
Presentation: *Deborah Schwartz(10 minutes)*
Responses: *Tammy Horne(10 minutes)*
Bryna Kopelow(10 minutes)
Discussion / Identification of Key Research Questions (*60 minutes*)

4:30 – 5:00 Wrap-Up

Saturday December 1, 2001

8:00 – 8:30 Continental Breakfast
8:30 – 9:00 Review of Previous Day (*Patti Hunter and Lorraine Greaves*)

9:00 - 10:30 **Determinants of Smoking**
Opening Presentation: *Blake Poland (15 minutes)*
Response: *Group (15 minutes)*

Part I: *The Role of the Media*

Presentation: *Amanda Amos (15 minutes)*
Response: Group (15 minutes)
Discussion / Identification of Key Research Questions (*30 minutes*)

10:30 – 10:45 **Break**

10:45 – 12: 15 **Part II: *Socio-economic Determinants of Smoking in Girls***

Presentation: *Susan Kirkland (15 minutes)*
Response: *Group (15 minutes)*

Part III: *Maintaining a Smoke-Free Status*

Presentation: *Roberta Swanson-Holm (15 minutes)*
Response: *Group (15 minutes)*
Discussion / Identification of Key Research Questions (*30 minutes*)

12:15 – 1:30 **Lunch**

1:30 – 2:30 **Policy and Advocacy Issues**

Presentation: *Lorraine Greaves (Filtered Policy) (15 minutes)*
Discussion (*15 minutes*)

Presentation: *Manuel Arango (Heart and Stroke Foundation) (15 minutes)*
Discussion (*15 minutes*)

2:30 – 2:45 **Break**

2:45 – 4:30 Consolidation of Key Research Questions
Chair: *Lorraine Greaves*

APPENDIX C

List of Workshop Participants

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APPENDIX D

Annotated Bibliography (Relevant Scientific Journal Articles)

ANNOTATED BIBLIOGRAPHY

Teenage Girls and Smoking: 1996 to 2001

This draft document is comprised of a list of 62 journal articles published between the years 1996 and 2001 that investigate the issue of smoking among teenage girls. The articles are categorized under four headings:

- HEALTH CONSEQUENCES
- SMOKING PREVENTION / CESSATION
- DETERMINANTS OF SMOKING
- CROSS-CULTURAL COMPARISONS

Articles that met the following four criteria were included in the bibliography:

- Used girl-only samples or included both genders and reported gender differences
- Published in 1996 or later
- Participants under the age of 19 years
- Reported more than only prevalence rates

The following databases were searched for articles.

- Cumulated Index to Nursing and Allied Health Literature (CINAHL)
- Medline
- PubMed
- PsychINFO
- Social Sciences Citation Index
- Sociological Abstracts
- Social Work Abstracts

In order to maximize the number of articles retrieved in the searches, the following words were used: 1) to describe the population: youth, girl*, and teen*; and 2) to describe the smoking behaviour: cigarette* and smok*. Additionally, the reference section of the US Surgeon General's report on Women and Smoking (2001) was perused to further identify relevant publications.

ANNOTATED BIBLIOGRAPHY

Teenage Girls and Smoking: 1996 to 2001

HEALTH CONSEQUENCES

◆ **Gold, D. R., Wang, X., Wypij, D., Speizer, F. E., Ware, J. H., & Dockery, D. W. (1996). Effects of cigarette smoking on lung function in adolescent boys and girls. *New England Journal of Medicine*, 335(13), 931-937.** The purpose of this study was to investigate the effects of cigarette smoking on the level and growth of lung functions of boys and girls who smoke. Information from physical examinations and about smoking behaviour was collected annually between 1974 and 1989 from boys (n = 5158) and girls (n = 4902) aged 10 to 18 years age from six cities in the United States. Smokers were more likely to have asthma and to have had episodes of wheezing compared to non-smokers. Additionally, girls reported greater rates of wheezing than boys. Finally, girls who smoked experienced a slower growth of lung function compared to boys, suggesting that girls are more vulnerable than boys to the effects of smoking on lung function.

◆ **Holmen, T. L., Barrett-Connor, E., Holmen, J., & Bjerner, L. (2000). Health problems in teenage daily smokers versus nonsmokers, Norway, 1995-1997: The Nord-Trondelag Health Study. *American Journal of Epidemiology*, 151(2), 148-55.** The aim of this study was to examine the relationship between health problems and daily smoking in adolescents. Teenagers in Nord-Trondelag County, Norway (8,040 students aged 13-18 years) completed questionnaires asking about smoking habits, health problems, medication use, and use of health services. Fifty-five percent of boys and 57% of girls had tried smoking, and 9% and 11%, respectively, reported current daily smoking. Daily smokers of both sexes and all age groups reported a variety of health problems compared to non-smokers: poorer perceived health, respiratory symptoms, headache, neck and shoulder pain, stomachache, nausea, frequent heartbeats, nervousness/restlessness, and sleep problems. Additionally, daily smokers reported greater use of medications and health services. The findings of this study suggest that smoking in adolescents is already associated with various health problems.

◆ **Patten, C.A., Choi, W.S., Gillin, J.C., & Pierce, J.P. (2000). Depressive symptoms and cigarette smoking predict development and persistence of sleep problems in US adolescents. *Pediatrics*, 106(2), E23.** This study investigated the relationship between smoking and the development and persistence of adolescent sleep problems. The Teenage Attitudes and Practices Survey was administered by telephone to 7960 adolescents (3921 girls and 4039 boys) 12 to 18 years old in 1989 and at follow-up in 1993. Children who responded that they "often or sometimes" had trouble going to sleep or staying asleep were categorized as reporting sleep problems, whereas those who responded "often" were categorized as having frequent sleep problems. Smoking behaviour and depressive symptoms were related to sleeping problems in teenagers. At follow-up, established smokers were at highest risk for frequent sleep problems, followed by experimenters at an intermediate risk, and never smokers at lowest risk of frequent sleep problems. Depressive symptoms at baseline led to an increased risk of sleeping behaviours in each group of smokers in the follow-up period. Reduction of depressive symptoms and smoking behaviour in adolescents need to be considered in the prevention and treatment of sleeping disorders.

◆ **Rasmussen, F., Siersted, H. C., Lambrechtsen, J., Hansen, H. S., Hansen, N. C. (2000). Impact of airway lability, atopy, and tobacco smoking on the development of asthma-like symptoms in asymptomatic teenagers. *Chest*, 117(5), 1330-5.** This study employed a prospective design in its investigation of the impact of airway lability, atopy, and tobacco smoking on the development of asthma-like symptoms. Adolescents (n = 271) with an average age of 13.9 years at inclusion were followed for 6.4 years. The authors report that hyperresponsiveness to methacholine, smoking, and atopy each predicted independently the development of asthma-like symptoms in girls and boys. Further, the findings indicate

that girls, but not boys, with airway lability were less likely to take up smoking, compared with participants with no airway lability (32% vs 51%; $p < 0.05$). There was no relationship between airway lability and giving up smoking; nor between the presence of atopy and smoking behavior. The presence of airway lability may prevent girls from taking up smoking.

SMOKING PREVENTION / CESSATION

◆ **Altman, D. G., Wheelis, A. Y., McFarlane, M., Lee, H. R., & Fortmann, S. P. (1999). The relationship between tobacco access and use among adolescents: A four community study. *Social Science and Medicine*, 48(6), 759-775.** The present study examined the effectiveness of a comprehensive, longitudinal community intervention aimed to reduce adolescent smoking by restricting cigarette sales to minors. The smoking interventions constituted community education, merchant education, and voluntary policy change. Students were recruited from rural schools in California from grades seven, nine, and eleven to complete questionnaires assessing retail tobacco sales to minors measured through store visits. The findings indicated that tobacco sales to minors by merchants dropped significantly more in the treatment communities (from 75% to 0%) than the non-intervention communities (from 64% to 39%). Girls living in communities where the interventions were offered were less likely to smoke than the girls living in the control communities. Through cooperation between merchants and the community, restrictions on cigarette sales to minors in combination with other educational interventions can reduce tobacco use amongst adolescents.

◆ **Botvin, G. J., Griffin, K. W., Diaz, T., Miller, N., & Ifill-Williams, M. (1999). Smoking initiation and escalation in early adolescent girls: One-year follow-up of a school-based prevention intervention for minority youth. *Journal of the American Medical Women's Association*, 54(3), 139-43, 152.** The objective of this study was to examine the effectiveness of a smoking prevention program in reducing the initiation and escalation of smoking in a sample of predominantly minority adolescent girls. Seventh-grade girls from 29 New York City public schools ($n = 1,278$) were exposed to a 15-session prevention program designed to teach refusal skills and more general personal and social skills. Compared to 931 girls in a control group, girls who underwent the intervention were less likely to initiate smoking. Additionally, experimental smokers in the intervention group were less likely to escalate to monthly smoking compared to controls. School-based smoking prevention programs that focus on skill acquisition effectively reduces smoking initiation and escalation in urban minority girls.

◆ **DiFranza, J. R., Savageau, J. A., & Aisquith, B. F. (1996). Youth access to tobacco: The effects of age, gender, vending machines locks, and "It's the Law" programs. *American Journal of Public Health*, 86(2), 221-224.** In the present study, twelve boys and girls ranging in age from 12 to 17 years old each made 40 attempts (480 attempts total) to purchase cigarettes from 40 merchants in Massachusetts who sold cigarettes either over-the-counter or through vending machines. Some of the vending machines were locked and/or had "It's the Law" stickers indicating it was illegal for retailers to sell to minors. Findings indicate that 33% of the attempts made to purchase cigarettes were successful. Successes were more likely from unlock vending machines than from over-the-counter sources; however, there were no differences in illegal sales between locked vending machines and over-the-counter purchases. In terms of gender differences, girls were significantly more likely than boys to successfully purchase cigarettes (37% of attempts versus 28%); but girls and boys were equally likely to be asked for identification. According to ratings made by high school employees, the girls who participated in the study were perceived to be 1.1 years older than the male participants. This suggests that underage girls are more likely than underage boys to be sold cigarettes by merchants because they are perceived to be over the legal age to purchase cigarettes.

◆ **Edvardsson, I., & Hakansson, A. (2000). Development of schoolchildren's smoking habits: Questionnaire studies in intervention and control groups. *Acta Paediatrica*, 89(10), 1257-61.** The present study describes the development and evaluation of a simple anti-smoking intervention for roughly 2000 sixth-grade adolescent boys and girls in Kronoberg County in Sweden. Participants in the intervention group (59 schools) were visited twice by a campaigner from A Non-Smoking Generation; while participants in the control group (21 schools) did not experience a smoking intervention. Baseline data indicated no differences in the frequency of smokers between the intervention group and the control group. One year after the intervention, the proportion of smokers then rose among the girls from 1% to 12% and among the boys from 2% to 7%. Two years after the intervention, the proportion of smokers in the intervention group was approximately two-thirds of that in the control group. Gender differences were not reported. A simple, school-based smoking intervention program can result in a decrease in the prevalence of smokers.

◆ **Ellickson, P. L., Tucker, J. S., & Klein, D. J. (2001). Sex differences in predictors of adolescent smoking cessation. *Health Psychology*, 20(3), 186-195.** This study investigated gender differences in predictors of smoking cessation among adolescents from 30 California and Oregon schools. Participants completed measures in Grades 7, 10, and 12. By Grade 10, 337 boys and 490 girls reported smoking at least 11 to 20 times during the past year. Two years later, 13% of boys and 11% of girls reported that they had quit smoking. Girls who reported that they had quit smoking indicated that they had friends who smoked less frequently, perceived less parental approval of their smoking, had weaker intentions to continue smoking, used marijuana less frequently, attended fewer different schools, were more likely to have an intact nuclear family, experienced greater peer support, and rated themselves as healthier. For boys, results were generally weaker and nonsignificant. There were gender differences in three predictors of smoking: delinquency, poor grades and peer support. For girls, less delinquency, poorer grades, and higher peer support were related to a greater likelihood quitting. For boys, quitting was predicted by more delinquency, better grades, and lower peer support. Gender differences in predictors of smoking cessation suggest that intervention strategies may need to be tailored differently for boys and girls.

◆ **Fidler, W., & Lambert, T.W. (2001). A prescription for health: A primary care based intervention to maintain the non-smoking status of young people. *Tobacco Control*, 10(1), 23-6.** This study evaluated the effectiveness of primary health care teams in maintaining a group of young people aged 10 to 15 years as non-smokers. Teenagers (n = 2942) from Oxfordshire, UK who indicated they were non-smokers were sent information about smoking (from their general practitioner) and certificates and posters intended to reinforce non-smoking behaviour. One year post-intervention, participants completed questionnaires assessing changes in smoking behaviour and attitudes. Follow-up data indicates that smoking uptake in participants in the intervention group was significantly less than participants in the control group. The intervention was more successful among boys aged 14 to 15 years (12.8% for the control group versus 5.4% for the intervention group) than girls of the same age (15.1%, control group versus 12.8%, intervention group). Additionally, the intervention was more successful with adolescents identified initially as non-smokers compared to potential smokers. Smoking intervention programs involving primary health care givers are more effective at reducing cigarette smoking in boys compared to girls.

◆ **Gratias, E. J., Krowchuk, D. P., Lawless, M. R., & Durant, R. H. (1999). Middle school students' sources of acquiring cigarettes and requests for proof of age. *Journal of Adolescent Health*, 276-283.** This study explored issues related to the access to cigarettes by middle school students using the responses of 2227 Grade 6 to 8 students who completed the Youth Risk Behavior Survey in the United States. Girls were more likely than boys to indicate that they borrowed cigarettes, had someone else buy them on their behalf or used "other means" to acquire cigarettes. Boys were more likely than girls to report that they bought cigarettes in a store or from a vending machine or stole them. Only 14.2% of children who purchased cigarettes in the previous 30 days reported that they had been asked for proof of age. Prevention efforts should target vendors and focus on enforcing laws requiring proof of age for the purchase of cigarettes.

◆ **Hafstad, A. Aaro, L. E., Engeland, A., Andersen, A., Langmark, F., & Stray-Pedersen, B. (1997). Provocative appeals in anti-smoking mass media campaigns targeting adolescents--the accumulated effect of multiple exposures. *Health Education Research, 12(2), 227-236.*** This report describes the findings from a longitudinal study that evaluated the effectiveness of three consecutive mass media campaigns using provocative and dissonance arousing appeals to prevent cigarette smoking by adolescents. Adolescents aged 14 to 15 years in Norway (n = 4,898) were exposed to the smoking prevention media campaign from 1992 to 1994. Questionnaires assessing smoking habits were completed at baseline (prior to the media campaign) and each year until 1995. An additional 5,439 adolescents who were not exposed to the media campaign, served as the control group. Non-smokers, at baseline, from the intervention group (both girls and boys) were less likely to start smoking compared to non-smokers from the control group. Significantly more girls in the intervention group had stopped smoking compared to girls in the control group. This difference was not found among boys. Media campaigns which use provocative and dissonance arousing appeals which lead to affective reactions may successfully prevent adolescents from initiating smoking. Further, this strategy may be more effective with girls than boys.

◆ **Koumi, I., & Tsiantis, J. (2001). Smoking trends in adolescence: Report on a Greek school-based, peer-led intervention aimed at prevention. *Health Promotion International, 16(1), 65-72.*** This study assessed the effectiveness of a peer-led smoking intervention program in Athens, Greece. Participants (n = 657 adolescent students; 50.7% girls, 49.3% boys, mean age 13.4 years) took part in 12 weekly two-hour group meetings for three months. The meetings were comprised of the development of audio-visual material with anti-smoking messages and discussions about how peers would feel about the messages. The findings demonstrate that smoking behaviour and intention to smoke declined immediately, but after three months, girls reported an increase in self-esteem and intention to smoke. A peer-led smoking intervention program may not be the best smoking prevention strategy for reducing smoking behaviour in adolescent girls.

◆ **Peterson, A.V. Jr., Kealey, K. A., Mann, S. L., Marek, P. M., & Sarason, I.G. (2000). Hutchinson Smoking Prevention Project: Long-term randomized trial in school-based tobacco use prevention--results on smoking. *Journal of the National Cancer Institute, 92(24), 1979-91.*** This study evaluated the effectiveness of the Hutchinson Smoking Prevention Program (HSPP, a school-based, social influences smoking cessation intervention) in reducing cigarette smoking among youth. Participants were recruited from two consecutive 3rd grades from 40 Washington school districts and were followed to two years after high school. School districts were randomly assigned to the control or experimental groups. The study was conducted from September 1984 through to August 1999. There were no significant differences in prevalence of daily smoking between students in the control and experimental districts, either at grade 12 or at 2 years after high school. Further, there were no gender differences in the impact of the intervention. These findings suggest that smoking cessation interventions that are school-based and that use a social influences approach are not effective in reducing smoking in both adolescent girls and boys.

◆ **Seguire, M., & Chalmers, K. I. (2000). Addressing the "costs of quitting" smoking: A health promotion issue for adolescent girls in Canada. *Health Promotion International, 15(3), 227-235.*** This study describes the social, emotional, and physiological experience of attempting to quit smoking. Twenty-five girls aged 18 or 19 years were recruited from six western Canadian high schools to be interviewed about the struggles they experience when attempting to quit smoking. Participants' experiences were categorized into three categories: social domain, emotional domain, and physiological domain. In the social domain girls reported that smoking helped them fit into a social group and feel more confident. Quitting smoking in this case would entail losing the desired image of a smoker. In the emotional domain, participants indicated that smoking helped them gain a sense of control in their life and aided with relaxation and stress reduction. Quitting smoking would result in a loss of a coping mechanism. Participants indicated that they were physiological addicted to nicotine; thus, previous attempts to quit resulted in difficulties coping with nicotine withdrawal. The young women reported that they lacked the strategies to deal with withdrawal effects. Further, participants expressed reluctance to give up the buzz/highs associated with cigarette smoking. The

findings of this study suggest that the social, emotional, and physiological costs associated with quitting smoking must all be considered when designing smoking interventions for girls.

◆ **Seguire, M., & Chalmers, K. I. (2000). Late adolescent female smoking. *Journal of Advanced Nursing, 31(6)*, 1422-1429.** The present study employed a qualitative, ethnographic approach to explore the patterns and factors that contribute to the process of starting, continuing, and stopping smoking among late adolescent girls. Twenty-five girls aged 18 or 19 years were recruited from six western Canadian high schools to be interviewed about their smoking behaviour and the smoking history of friends and family. All were either current or former smokers. Participants indicated that smoking provides a social connection with other smokers and helps them achieve group acceptance. Among girls' reasons to start smoking included fitting into a social network, to improve their image, and because one of their family members smoked. Girls indicated that they continued to smoke as a coping mechanism, because of the social connection to other smokers, and because they are addicted to nicotine. The girls also expressed a great deal of regret for having started to smoke. Fifteen of the 25 girls indicated that they had no plans to quit smoking. Among the barriers to quitting cited by the participants are withdrawal effects, the relationship between smoking and drinking alcohol, peer pressure, and lack of support from parents.

◆ **Soldz, S., Kreiner, P., Clark, T. W., & Krakow, M. (2000). Tobacco use among Massachusetts youth: Is tobacco control working? *Preventive Medicine: An International Journal Devoted to Practice and Theory, 31(4)*, 287-295.** This study evaluated the impact of the Massachusetts Tobacco Control Program (implemented in 1993) on smoking rates among youth. Tobacco control in this case constituted raising cigarette taxes by 25 cents and using the additional revenue for health promotion efforts. Data from the Massachusetts Prevalence Study were analyzed to estimate differences between 1993 and 1996 rates of youth cigarette smoking, attitudes toward smoking, and awareness of cigarette ads and promotions of antismoking messages. The results indicate that lifetime and current smoking rates declined significantly among middle school males, but that rates did not change among girls in the same age group. There were no significant changes in smoking rates among high school students. Finally, students reported declines in awareness of cigarette ads or promotions and increases in awareness of antismoking messages. These findings suggest that tobacco control measures that involve raising cigarette taxes may be effective with younger adolescent boys, but not with adolescent girls. Further, a media-based smoking prevention campaign may increase the awareness of anti-smoking messages, but it does not result in a decline in smoking rates among girls.

◆ **Svoen, N., & Schei, E. (1999). Adolescent smoking prevention - - primary health care in cooperation with local schools: A controlled intervention study. *Scandinavian Journal of Primary Health Care, 17(1)*, 54-58.** This study evaluated a secondary school smoking prevention program in a small rural Norwegian municipality. Students from grades six to nine (180 in the intervention group and 364 in the control group) were exposed to grade-specific intervention strategies comprised of 32 lessons over a period of 3 years. The authors report that students in the intervention group had a lower rate of daily smoking and daily smokers smoked fewer cigarettes compared to students in the control group. Additionally, the intervention was more successful among girls compared to boys. School-based interventions delivered over a period of three years successfully reduce smoking in adolescents, especially for girls.

◆ **Wordon, J. K., & Flynn, B. S. (1996). Using mass media to prevent cigarette smoking among adolescent girls. *Health Education Quarterly, 23(4)*, 453-468.** The purpose of this study was to compare the effectiveness of a school-based smoking prevention intervention campaign and a combined school-based and mass media smoking prevention intervention on the reduction of smoking in teenage girls and boys. Both interventions were targeted toward adolescent girls. Students from grades five to seven (n = 5,458) were exposed to either the school-based only (two communities in Montana, US) or combined mass media and school-based intervention (two communities in northeastern US) and were surveyed annually for four years.

Girls exposed to the combined intervention reported fewer increases in positive attitudes towards smoking and intentions to smoke than girls exposed to the school-based only intervention. Additionally, girls in the combined approach had a lower prevalence of weekly smoking (16.5%) than girls in the school-only group (29.4%) as measured two years after the implementation of the interventions. The different approaches did not result in significant differences in boys' smoking attitudes and behaviours. This is likely a function of the fact that the interventions were targeted toward girls, not boys. The results of this study suggest that a combined mass media and school-based intervention is superior to a school-based only intervention in reducing cigarette smoking in adolescent girls.

DETERMINANTS OF SMOKING

◆ **Amos, A., Gray, D., Currie, C., & Elton, R. (1997). Healthy or druggy? Self-image, ideal image and smoking behaviour among young people. *Social Science & Medicine*, 45(6), 847-858.** This study explored differences in young people's self and ideal image according to age, gender, and smoking status in a sample of 452 males and 445 females aged 12 to 19 years. The findings indicate that overall, there were no gender differences in self-image. In general, males and smokers tended to rate themselves more positively compared to girls and non-smokers. Perceiving themselves as a "druggy" and as less healthy are the two traits which differentiated smokers from non-smokers. The differences in self and ideal image between female smokers and non-smokers were less consistent.

◆ **Austin, S. B., & Gortmaker, S. L. (2001). Dieting and smoking initiation in early adolescent girls and boys. A prospective study. *American Journal of Public Health*, 91(3), 446-451.** This study analyzed the relationship between dieting frequency and smoking initiation in 1295 Grade 6 and 7 children in the Boston, Massachusetts area. Data was collected on two separate occasions (20 months apart). The results indicate that there were no gender differences in dieting behaviour nor smoking at baseline. Dieting frequency was not related to smoking in boys. Girls who dieted at baseline were more likely to be smokers at the follow-up assessment. At follow-up only half as many obese girls became smokers compared to non-obese girls. Dieting at early age increases the risk of becoming a smoker for girls, not boys.

◆ **Barber, J. G., Bolitho, F., & Bertrand, L. D. (1999). The predictors of adolescent smoking. *Journal of Social Service Research*, 26(1), 51-66.** The purpose of this study was to investigate the influence of family predictors, intrapersonal disorder, and peer pressure on a group of 1,942 students aged 12 to 18 in Canada. Peer pressure was significantly correlated with tobacco use across all age and gender cohorts. Among 12 to 13 year olds, intrapersonal factors (i.e., conduct disorder, self-esteem) were a more significant predictor of smoking behaviour among girls compared to boys of the same age. Within the 14-15 year-old group, one peer pressure variable (i.e., friends' approval of smoking) was a more significant predictor of girls' smoking than boys' smoking. Among girls aged 16 to 17, no intrapersonal factors predicted smoking behaviour. Only friends' smoking behaviour and friends' approval of smoking predicted smoking in 16 to 17 year-old girls. These findings suggest that smoking intervention programs should incorporate both peer resistance training and developmental strategies.

◆ **Byrne, D. G., & Reinhart, M. I. (1998). Psychological determinants of adolescent smoking behaviour: A prospective study. *Australian Journal of Psychology*, 50(1), 29-34.** This study used a prospective design to explore the psychological determinants of adolescent smoking in a sample of initial nonsmokers (1,945 males and 1,716 females) aged 13 to 17 years, followed-up over 1 year. Similar predictors of initial smoking emerged for girls and boys for all age groups: expectations of future smoking, having friends who smoke, absence of link between smoking and fitness, and pressure to smoke. For boys, the perception that boys who smoke are more popular, stress of educational irrelevance, and poor school performance in a favorite subject also predicted smoking onset; while for girls, high neuroticism and stress of

family conflict also contributed to smoking onset. These findings provide suggestions for which elements should be incorporated into smoking intervention programs.

◆ **Chalton, A., Minagawa, K.-e., & While, D. (1999). Saying "no" to cigarettes: A reappraisal of adolescent refusal skills. *Journal of Adolescence*, 22(5), 695-707.** The purpose of the present study was to explore gender differences in refusing or accepting cigarettes. English boys (n = 365) and girls (n = 378) aged 11 to 15 years completed a survey assessing smoking behaviour, refusal skills, and self-perceptions. Children whose best friend smoked and girls, in general, were more likely to report being repeatedly offered cigarettes and were more likely to accept a cigarette after more than two offers. Boys reported smoking their first cigarette at an earlier age than girls, but by age 13, girls were more likely to be regular smokers than boys. Boys reported using more methods than girls, but saying "no, thank you" was the most commonly reported refusal technique by both girls and boys.

◆ **Chassin, L., Presson, C. C., Todd, M., Rose, J. S., & Sherman, S. J. (1998). Maternal socialization of adolescent smoking: The intergenerational transmission of parenting and smoking. *Developmental Psychology*, 34(6), 1189-1201.** This study used a longitudinal design to examine the influence of parental smoking on adolescent smoking uptake. Students from Grades 6 through 12 were recruited to participate in the current study in 1980 to 1983. Participants were then followed up in 1987 and 1993. Finally, 214 mothers and their offspring completed questionnaires in 1994 and 1995 about their smoking behaviour. Findings indicate that there is evidence for intergenerational transmission of both parenting practices and smoking behaviour.

◆ **Crisp, A. H., Stavrakaki, C., Halek, C., Williams, E., Sedgwick, P., & Kiossis, I. (1998). Smoking and pursuit of thinness in schoolgirls in London and Ottawa. *Postgraduate Medical Journal*, 74, 473-479.**

◆ **Crisp, A. H., Sedgwick, P., Halek, C., Joughin, N., & Humphrey, H. (1999). Why may teenage girls persist in smoking? *Journal of Adolescence*, 22(5), 657-672.** These studies explored the relationship among body image, dietary, and weight-related issues, smoking and alcohol consumption, and menstruation among 1936 schoolgirls from England and 832 girls from Ottawa, Canada aged 11 to 17. Data analyses reveal that girls were more likely to smoke if they were post-menarchal, drank alcohol, were overweight, experienced significant weight loss after puberty, and if they reported high levels of weight anxiety, eating anxiety, and depression. Smoking is greatly associated with vomiting, they both defenses to avoid weight gain. Smoking intervention programs must consider that concerns about weight gain and thinness are prevalent among teenage girls.

◆ **Crump, R. L., & Lillie-Blanton, M. (1997). The influence of self-esteem on smoking among African-American school children. *Journal of Drug Education*, 27(3), 277-291.** The purpose of this study was to explore the relationship between self-esteem and smoking in a sample of 1256 African American children aged 8 to 12. Findings revealed that children with low self-esteem were twice as likely to have ever smoked compared to children with higher self-esteem. This relationship was particularly strong for girls in the sample. Girls with the lowest level of self-esteem were 2.8 times as likely to have smoked compared to girls with higher self-esteem. The findings suggest that smoking prevention efforts aimed at reducing smoking among African American girls must address self-esteem issues.

◆ **Flay, B. R., Hu, F. B., & Richardson, J. (1998). Psychosocial predictors of different stages of cigarette smoking among high school students. *Preventive Medicine*, 27, A9-A18.** The purpose of this study was to identify predictors of different stages of smoking in a sample of 2,912 Grade 7 students (49.6% female) from 47 urban schools in the United States who were followed up in Grade 12. The findings indicate that there were a number of gender differences in the predictors in smoking status in Grade 12. In general, social influence variables such as parental smoking and friends' smoking predicted experimental and regular smoking among girls only. Further, parental smoking and family conflict predicted the transition from

experimental smoker to regular smoker in girls but not boys. Intrapersonal factors such as outcome expectancies and risk taking behaviour predicted the transition from trial smoking to experimental smoking in boys only.

◆ **Griffin, K. W., Botvin, G. J., Doyle, M. M., Diaz, T., & Epstein, J. A. (1999). A six-year follow-up study of determinants of heavy cigarette smoking among of high-school seniors. *Journal of Behavioral Medicine*, 22(3), 271-284.** The present study investigated the risk and protective factors of heavy smoking in adolescence in a sample of 743 Grade 7 students who were followed-up in Grade 12. Data analyses reveal that heavy smoking in Grade 12 is predicted by the following variables measured in Grade 7: poor grades, experimentation with cigarettes or alcohol, a mother or many friends that smokes, and high risk-taking. Less heavy smoking by girls in Grade 12 was related to antismoking attitudes and antismoking attitudes of one's parents and friends in Grade 7. These findings support the need for gender-specific smoking interventions programs that emphasize social influence factors and media analysis for girls.

◆ **Guthrie, B. J., Young, A. M., Boyd, C. J., & Kintner, E.K. (2001). Dealing with daily hassles: Smoking and African-American adolescent girls. *Journal of Adolescent Health*, 29(2), 109-15.** The purpose of this study is to examine the relationship between smoking and daily life hassles in a sample of 105 African-American adolescent girls (average age of 15 years). Data analyses reveal that 43.8% of the girls in the sample had smoked at least one cigarette in their lifetime. The average age of smoking initiation was 12.55 years (SD = 2.63). Smokers reported a significantly higher number of daily hassles than non-smokers in general and within the academic and family domains. Furthermore, girls who reported more daily hassles started smoking at an earlier age.

◆ **Harrell, J. S., Bangdiwala, S., I., Deng, S., Webb, J. P., & Bradley, C. (1998). Smoking initiation in youth: The role of gender, race, socioeconomics, and developmental status. *Journal of Adolescent Health*, 23(5), 271-279.** This study investigated which factors predict early initiation of smoking in school children aged 8 to 11 years. Data was collected on five separate occasions. Participants were asked questions about their smoking behaviour and parents completed questionnaires assessing education and socioeconomic background. Finally, in Grades six and seven, participants completed a Pubertal Development Scale (PDS) to determine pubertal stage. Findings indicate that boys were more likely than girls to be experimental smokers. Children from rural areas were more likely to smoke than children from urban areas. Likelihood of smoking was correlated to lower parental education, having higher pubertal development, and being Caucasian. Smoking prevention programs should begin in elementary school and should be targeted at disadvantaged youth.

◆ **Killen, J. D., Robinson, T. N., Haydel, K. F., Hayward, C., Wilson, D. M., Hammer, L. D., Litt, I. F., & Taylor, C. B. (1997). Prospective study of risk factors for the initiation of cigarette smoking. *Journal of Consulting and Clinical Psychology*, 65(6), 1011-1016.** This study examines risk factors linked to the initiation of cigarette smoking. Two multi-ethnic cohorts of 9th graders who had never smoked were followed over a 2-3 year period. Both girls (n=863) and boys (n=927) were assessed on a yearly basis. Having friends who smoked was the most important predictor of smoking initiation among students who had never previously smoked. Among girls with no history of smoking, friends who smoked, and higher sociability scores were linked to higher percentage of trying smoking. Among boys with no history of smoking, friends who smoked, and higher depression symptom scores were linked with increased smoking experimentation. The authors determine that further research is needed into gender differences in smoking initiation.

◆ **Koval, J. J., & Pederson, L. L. (1999). Stress-coping and other psychosocial risk factors: A model for smoking in grade 6 students. *Addictive Behaviors*, 24(2), 207-218.** This is the second report of a 5-year longitudinal study investigating the correlation between stress, coping, mastery, self-esteem, social support, psychological distress and smoking behavior. A questionnaire administered to 1552 Canadian

(Ontario) students investigated reported past, current, and anticipated future involvement with smoking. Several gender differences were noted in the correlation between psychosocial coping and smoking. Rebelliousness and attitudes toward the effect of second-hand smoke were predictors of smoking for boys; whereas maternal smoking and rebelliousness were the most important predictors of smoking for girls.

◆ **Koval, J. J., Pederson, L. L., Mills, C. A., McGrady, G. A., & Carvajal, S. C. (2000). Models of the relationship of stress, depression, and other psychosocial factors to smoking behavior: A comparison of a cohort of students in grade 6 and 8. *Preventive Medicine, 30*, 463-477.** This is the third report of a 5-year longitudinal study investigating the correlation between stress, coping, mastery, self-esteem, social support, psychological distress and smoking behavior. A questionnaire administered to 1552 Canadian (Ontario) students investigated reported past, current, and anticipated future involvement with smoking. For both girls and boys in Grade 8, increased levels of stress predicted an increased likelihood of smoking. Smoking by boys was influenced by mastery, social conformity, and rebelliousness; whereas smoking by girls was influenced by environmental smoking (i.e., mother, father, peers) and rebelliousness. Gender differences in predictors of smoking exist and should be considered when developing intervention strategies.

◆ **Lloyd, B., Lucas, K., & Fernbach, M. (1997). Adolescent girls' constructions of smoking identities: Implications for health promotion. *Journal of Adolescence, 20*(1), 43-56.** This study explored girls' construction of social identities and how these are applied to smoking group membership (i.e., non-smoker, occasional smokers, regular smokers), using data collected from 3521 English schoolchildren aged 11 to 17 years on two separate occasions. Focus groups were conducted with girls aged 11 to 13 to collect supplementary information about smoking behaviour. Girls who have reached puberty were more likely to smoke than boys. Girls who smoke indicated that cigarettes were important in the development of their social identity. Their identity involves being rebellious against authority, lacking interest in schoolwork or activities and engaging in "risky" behaviour. Occasional smokers were described as being undecided about smoking and having both smoking and non-smoking friends. Non-smokers described themselves abiding by rules, being conscientious about schoolwork and activities, valuing health, mature, fun-loving, sensible and were unlikely to have friends who smoked. Smoking interventions efforts should employ a multi-faceted approach which targets non-smokers, occasional smokers, and regular smokers differently.

◆ **Lucas, K., & Lloyd, B. (1999). Starting smoking: Girls' explanations of the influence of peers. *Journal of Adolescence, 22*(5), 647-655.** The purpose of this study was to explore the circumstances surrounding smoking initiation among 4771 English school boys and girls aged 11 to 17 years. In addition, focus groups were conducted with girls aged 11 to 13 to collect supplementary information about smoking behaviour. Findings indicate that there was only one gender difference: boys reported smoking at an earlier age than girls. Focus group data reveal that smoking initiation takes place with one or two friends present, outside of a familiar location, and usually does not lead to regular smoking. Experiences surrounding smoking initiation differed according to membership in groups of never, experimental, and regular smokers.

◆ **Michell, L., & Amos, A. (1997). Girls, pecking order and smoking. *Social Science and Medicine, 44*(12), 1861-1869;** ◆ **Michell, L. (1997). Loud, sad or bad: Young people's perceptions of peer groups and smoking. *Health Education Research: Theory & Practice, 12*(1), 1-14.** This study explored the relationships among smoking, peer group structure, and gender in 36 11 year-old schoolchildren and 40 13 year-old schoolchildren from Glasgow, Scotland. By the second year in secondary school, girls were more likely than boys to be smoking occasionally and regularly. Peer group structure was related to smoking behaviour. Girls at the top of the social pecking order were the most likely to identify themselves as smokers and to indicate that they smoked due to the pressures they felt in maintaining their image and popularity. Girls in the middle of the pecking order were least likely to smoke. Girls at the bottom of the pecking order indicated that they smoked in an attempt to raise their status. Additionally, they were the least likely to assume personal responsibility for taking up smoking. In contrast, boys of high status were the least likely to smoke citing sport and a desire to be fit as reasons for not smoking. These findings suggest that smoking

intervention strategies must be gender-specific.

◆ **Moffat, B. M., & Johnson, J.L. (2001). Through the haze of cigarettes: Teenage girls' stories about cigarette addiction. *Qualitative Health Research, 11(5)*, 668-81.** The purpose of this study was to use narrative inquiry to investigate how teenage girls experience and explain nicotine addiction. Twelve girls aged 14 to 17 years who indicated that they had recently smoked were interviewed. Analyses revealed three narratives explaining participants' experiences: invincibility, giving in, and unanticipated addiction. Girls who told a story of invincibility explained that they were in control of their smoking and were not addicted to nicotine. Some girls explained that they gave in to smoking and described themselves as controlled by external forces. Some girls described how they did not anticipate addiction and recounted their surprise at realizing that they were addicted. Two subnarratives, needing to quit and repeating history, also emerged. Smoking intervention programs must take into account teenage girls' perspectives regarding addiction and smoking behaviour.

◆ **Nichter, M., Nichter, M., Vuckovic, N., Quintero, G., & Ritenbaugh, C. (1997). Smoking experimentation and initiation among adolescent girls: Qualitative and quantitative findings. *Tobacco Control, 6(4)*, 285-95.** This study describes patterns of smoking experimentation and initiation among adolescent girls aged 16 and 17 from Arizona. Participants completed ethnographic in-person interviews, focus groups, telephone interviews, and a survey questionnaire. Stress reduction and relaxation were the most frequently cited reasons for smoking. Specifically, participants described stress-inducing situations involving their family environment, social relations with classmates, and schoolwork. Girls reported that they did not experience peer pressure to smoke, but rather the decision to begin and to continue smoking was an independent one. Smoking intervention programs must address the association between smoking and relaxation.

◆ **O'Loughlin, J., Paradis, G., Renaud, L., & Gomez, L. S. (1998). One-year predictors of smoking initiation and of continued smoking among elementary school children in multiethnic, low-income, inner-city neighbourhoods. *Tobacco Control, 7(Autumn)*, 268-275.** This study investigated the predictors of smoking initiation among never-smokers and predictors of continued smoking among ever-smokers in a population of grade 4 to 6 students from Montreal (n = 1824). There were no gender differences in predictors of smoking initiation. For both boys and girls, smoking initiation was predicted by having friends who smoke, having siblings who smoke, having either a father or mother smoke, and frequent junk food consumption. Continued smoking was correlated with age and having friends who smoke for both girls and boys. Girls classified as "ever-smokers" were more likely to continue smoking if they were overweight, compared to girls that were not overweight. Smoking intervention programs should focus on peer and sibling influences on smoking. Additionally, weight-related concerns should also be addressed in girls.

◆ **O'Loughlin, J., Renaud, L., Paradis, G., Meshefedjian, G., & Zhou, X. (1998). Prevalence and correlates of early smoking among elementary schoolchildren in multiethnic, low-income inner-city neighborhoods. *Annals of Epidemiology, 8*, 308-318.** This study explored the prevalence and correlates of early smoking in a sample of 2285 boys and girls in Grades 4 to 6 in Montreal. Correlates of early smoking in both girls and boys included age (older being more likely to have smoked), grade level, perceived smoking habits of friends, mother smoking, sibling smokes, high fat/junk food consumption, and number of TV programs watched per day. At a $p < .10$ level, additional correlates for boys included having a father who smokes, higher body mass index, and greater physical activity. For girls, additional correlates included family status, and mother's lack of encouragement for non-smoking. These findings suggest that there are several important correlates of smoking and that may differ by gender.

◆ **Patton, G. C., Hibbert, M., Rosier, M. J., Carlin, J. B., et al. (1996). Is smoking associated with depression and anxiety in teenagers? *American Journal of Public Health, 86(2)*, 225-230.** This study explored the relationship between depression and anxiety and smoking in a sample of 1,217 male and 1,308

female Australian 7th, 9th, and 11th graders. Data analyses showed that, after controlling for age, sex, alcohol use, and parental smoking, participants reporting high levels of depression and anxiety were twice as likely to identify themselves as smokers. Additionally, regular smokers were almost twice as likely as occasional smokers to report high levels of depression and anxiety. These findings provide support for the theory that teenage girls use smoking as self-medication for depression and anxiety.

◆ **Pederson, L. L., Koval, J. J., & O'Connor, K. (1997). Are psychosocial factors related to smoking in grade-6 students? *Addictive Behaviors, 22(2), 169-181.*** This is the first report from a longitudinal study on the relationship between psychosocial factors and smoking among 6th grade students. A questionnaire administered to 1552 Canadian (Ontario) students investigated reported past, current, and anticipated future involvement with smoking. Students who had smoked were more likely than those who had never smoked to: have weekly spending money, have a parent and/or sibling who smoked, and have friends who smoked. Additionally, 'ever-smokers' reported more depression than did 'never smokers'. Boys were more likely than girls to have weekly spending money, to have a job, to spend time with friends, to have higher self-esteem. Girls were more likely to report that they were too heavy, that they experienced more life events in the past year, and they scored higher on depression, coping, and problem solving compared to boys.

◆ **Piko, B. (2001). Smoking in adolescence: Do attitudes matter? *Addictive Behaviors, 26(2), 201-217.*** This study explored the dimensions of attitudes toward smoking in a sample of 261 primary (Grades 7-8) and secondary (Grades 9-12) school students in Hungary. Factor analysis of the participants' responses revealed five factors: antismoking attitude, liking attitude, worrying attitude, disliking attitude, and unrealistic attitude. Antismoking attitude was the only factor correlated with smoking behaviour. Among girls, disliking attitude, mother's approval, father's education, and number of smoking friends were predictive of higher tobacco use. Among boys, only antismoking attitude and number of smoking friends were related to tobacco use. These findings suggest that smoking interventions should be adapted to specific target groups.

◆ **Simantov, E., Schoen, C., & Klein, J. D. (2000). Health-compromising behaviors: Why do adolescents smoke or drink? Identifying underlying risk and protective factors. *Archives of Pediatrics and Adolescent Medicine, 154(10), 1025-33.*** This study explored protective and risk factors for smoking and drinking among 2574 boys and 2939 girls in Grades 7 to 12 across the United States. The findings indicate that the risk factors for smoking and drinking among boys were exposure to childhood abuse and stressful life events. The risk factors for both smoking and drinking among girls were a history of abuse, violence within the family, depressive symptoms, and stressful life events. The protective factors against smoking were parental support and participation in extracurricular activities for both boys and girls. Smoking and drinking are associated with negative life events.

◆ **Simons-Morton, B., Crump, A. D., Haynie, D. L., Saylor, K. E., Eitel, P., & Yu, K. (1999). Psychosocial, school, and parent factors associated with recent smoking among early-adolescent boys and girls. *Preventive Medicine, 28(2), 138-148.*** The purpose of this study was to examine the relationship between smoking and demographic/contextual, psychosocial, school, and parent variables in youth. Grade 6, 7, and 8 students from Maryland schools (n = 4,263) completed questionnaires assessing smoking and the above-mentioned variables. There were no gender differences in smoking prevalence rates across grades. For boys and girls, smoking was correlated to positive outcome expectations, high prevalence, deviance acceptance, trouble at school, and fighting with parents and parent who have low expectations. Self-control problems, knowledgeable parents, school grades, low levels of social affiliation, depressive symptoms, and being victimized at school were related to smoking in girls. For boys, having problem-behaving friends, peer pressure, authoritative parenting, and mother's education was related to smoking. Effective smoking prevention programs should focus on parent, school, and student outcomes.

◆ **Strauss, R. S., & Mir, H. M. (2001). Smoking and weight loss attempts in overweight and normal-weight adolescents. *International Journal of Obesity, 25(9), 1381-5.*** This study explored the relationship between smoking and dieting in a sample of 1132 adolescents aged 12 to 18 years in the United States. Data analyses revealed that there were no differences in body weight, BMI, caloric intake or fat intake between smokers and non-smokers. Smokers ate less fruit and vegetables and were more likely to drink alcohol than non-smokers. Among girls, there was an increase in smoking among normal-weight girls who reported trying to lose weight. There was no difference in prevalence rates of tobacco use between overweight girls trying to lose weight and those not trying to lose weight. Among boys, similar trends were apparent; however, overweight boys trying to lose weight were less likely to smoke than overweight boys who were not trying to lose weight. Smoking is common among normal weight boys and girls trying to lose weight. In addition, smoking in adolescence is also associated with many other unhealthy dietary practices.

◆ **Tomori, M., Zalar, B., Kores-Plesnicar, B., Zihlerl, S., & Stergar, E. (2001). Smoking in relation to psychosocial risk factors in adolescents. *European Child and Adolescent Psychiatry, 10(2), 143-150.*** The purpose of this study was to explore which psychosocial factors distinguish smokers from non-smokers in a sample of 2,111 high school students aged from 17 to 18 years. Findings indicate that for both girls and boys, frequency of substance abuse, family dysfunction, suicidal ideation and suicide attempts, attitude towards the harmful effects of smoking, truancy from school, and lesser involvement in sports distinguished smokers from non-smokers. Substance abuse, truancy, suicide attempts, a lower estimate of the harmfulness of smoking, and infrequent engagement in sports predicted smoking behaviours in both genders. Among the girls, sexual and physical abuse and binge eating also predicted smoking behaviour. Smoking in adolescence is related to a variety of other problem behaviours and psychopathological disturbances.

◆ **Wagner, E. F., & Atkins, J. H. (2000). Smoking among teenage girls. *Journal of Child and Adolescent Substance Abuse, 9(4), 93-100.*** This paper reviews the existing literature about girls and smoking. The authors describe variables which may influence smoking among teenage girls. Specifically, the literature suggests that teenage girls' smoking behaviour is influenced by weight control motives, social influences (i.e., best friends, parents), mood management motives (i.e., depression, anxiety), and image-related motives (i.e., the desire to improve one's image). The authors suggest that smoking cessation among teenagers has been a neglected topic. Finally, the authors recommend that prevention and cessation efforts should be gender-specific.

◆ **Wang, M. Q., Eddy, J. M., & Fitzhugh, E. C. (2000). Smoking acquisition: Peer influence and self-selection. *Psychological Reports, 86(3, Pt2), 1241-1246.*** This study explored the relationships between smoking onset and peer influence and self-selection in a sample of 4, 444 adolescents in the United States. Teenagers who were non-smokers in 1989 were re-interviewed in 1993. The findings indicate that for both girls and boys, having nonsmoking friends in 1989 increased the likelihood of smoking in 1993; whereas having one or two same- sex best friends who smoke increased the risk of participants becoming either regular or experimental smokers in 1993. These findings suggest that self-selection of smoking friends may influence smoking onset in adolescents. It may be useful to adapt smoking prevention strategies toward influencing teenagers' selection of friends.

◆ **Wiseman, C. V., Turco, R. M., Sunday, S. R., & Halmi, K. A. (1997). Smoking and body image concerns in adolescent girls. *International Journal of Eating Disorders, 24(4), 429-433.*** The purpose of this study was to examine the relationship between smoking and body image concerns among adolescent girls in New England aged 11 to 18 years with and without eating disorders (n = 82 and n = 411, respectively). Findings indicate that girls with anorexia nervosa (restrictive type) were less likely to smoke; whereas girls diagnosed with bulimia were the most likely to smoke. Smokers had greater body dissatisfaction and lesser awareness of internal events compared to non-smokers. The likelihood of smoking increased by age for both non-clinical participants and eating disorders patients; however decreased awareness of internal events and less perfectionism increased the likelihood of smoking in the non-clinical

sample only. Body image concerns were greater among smokers than non-smokers.

◆ **Zhang, L., Wang, W., Zhao, Q., & Vartiainen, E. (2000). Psychosocial predictors of smoking among secondary school student in Henan, China. *Health Education Research, 15(4)*, 415-422.** This study investigated the risk factors associated with the prevalence of tobacco (cigarette) use among 3519 students aged 10 to 19 years in China. The prevalence rate of ever having smoked was 15.1% for boys and 1.4% for girls. The majority of participants smoked their first cigarette between the ages of 10 and 14. For both boys and girls, smoking was associated with having peers, teachers, or a mother who smoked, and having positive attitudes toward smoking.

◆ **Zhu, B. P., Liu, M., Shelton, D., & Liu, S., et al. (1996). Cigarette smoking and its risk factors among elementary school students in Beijing. *American Journal of Public Health, 86(3)*, 368-375.** This study investigated the risk factors for smoking among 16,996 Grade 4 to Grade 6 school children aged 10 to 12 in Beijing, China. Findings revealed that 28% of boys and 3% of girls had smoked at least one cigarette. Among the reasons cited for smoking initiation were "to imitate other's behavior" and "to see what it was like." Girls, compared to boys were more likely to indicate that they obtained cigarettes family members rather than through purchasing their own. For both boys and girls, having close friends who smoked and being encouraged by close friends to smoke were the two strongest risk factors for smoking. Other risk factors for smoking included lower parental socioeconomic status; having parents, siblings, or teachers who smoked; buying cigarettes for parents; performing poorly in school; and not believing that smoking is harmful to health. No gender differences in risk factors for smoking were reported.

CROSS-CULTURAL COMPARISONS

◆ **Alexander, C. S., Allen, P., Crawford, M. A., & McCormick, L. K. (1999). Taking a first puff: Cigarette smoking experiences among ethnically diverse adolescents. *Ethnicity and Health, 4(4)*, 245-257.** This qualitative study explored the social contexts and physiological consequences of an initial cigarette smoking experience among adolescents (aged 13-19 yrs) from 4 ethnic groups (African American, European American, Hispanic, Native American). Eighty-seven teenagers completed individual interview while 227 participated in focus groups. Data analyses revealed two broad themes (social interactions with friends and family members' role as instigators). Boys were more likely than girls to indicate that they experienced peer pressure to smoke. No Hispanic or American Indian teen mentioned that smoking initiation was coerced. European American and Hispanic girls frequently reported active encouragement to smoke from parents. Hispanic and American Indian adolescents often depicted other family members (e.g., cousins, uncles) influencing their initiation to smoking. Negative physiological reactions to initial smoking attempts were frequently cited as deterrents to continued smoking. There are gender and ethnic differences in the experiences surrounding smoking initiation.

◆ **Epstein, J. A., Botvin, G. J., & Diaz, T. (1998). Ethnic and gender differences in smoking prevalence among a longitudinal sample of inner-city adolescents. *Journal of Adolescent Health, 23(3)*, 160-166.** This study explored ethnic and gender differences in smoking in a mixed sample of 1,409 Asian, Black, Hispanic, and White Grade 6 and 7 adolescents from urban schools in the United States. Participants completed questionnaires annually for three years. Results demonstrate that Black girls had a higher lifetime smoking prevalence rate than Black boys at all three assessment periods. At the two-year follow-up period, Asian boys reported higher lifetime smoking prevalence than Asian girls and Hispanic girls reported higher 30-day smoking prevalence than Hispanic boys. Overall, White and Hispanic adolescents were at higher risk for smoking than Asian and Black adolescents. Smoking prevalence varies by gender and ethnicity.

◆ **Hanson, M. J. S. (1997). The theory of planned behavior applied to cigarette smoking in African-American, Puerto Rican, and non-Hispanic white teenage females. *Nursing Research, 46(3), 155-162.*** This study purpose was to use Ajzen's Theory of Planned Behavior to identify predictors of cigarette smoking intention in three groups of teenage females aged 13 to 19: African American (n = 141), Puerto Rican (n = 146), and non-Hispanic Caucasian (n = 143). African-American girls' smoking behavior was directly influenced by attitude, subject norm and perceived behavioral control; while Puerto Rican and Caucasian girls' smoking intention was directly influenced by attitude and perceived behavior of control. The Theory of Planned Behavior provides a sufficient explanation of cigarette smoking amongst African-American adolescent females, but not among Puerto Rican or Caucasian girls.

◆ **Hanson, M. J. S. (1999). Cross-cultural study of beliefs about smoking among teenaged females. *Western Journal of Nursing Research, 21(5), 635-651.*** The purpose of the present study was to identify differences in beliefs about smoking in groups of African American (n = 141), Puerto Rican (n = 146), and non-Hispanic Caucasians (n = 143) adolescent girls aged 13 to 19 years. The findings reveal that there were ethnic differences in attitudes toward smoking. Specifically, African American girls who smoked indicated that smoking was enjoyable, made them feel good, did not affect their breathing, were comfortable spending money on cigarettes, and that smoking increased their chances of getting heart disease. They also reported that their mothers and their best friends were their biggest influence in their decision to smoke. Puerto Rican girls who smoked revealed that smoking was enjoyable, made them feel good, was not bad for their health, and that their mothers and friends influenced their smoking behaviour. As opposed to African American girls, Puerto Rican smokers believed that smoking negatively affected their breathing. The Caucasian smokers indicated that smoking was enjoyable, that it was bad for their health, and that smoking would help them relax. Caucasian smokers were the only group to identify their boyfriends as being the most important in shaping their smoking behaviour. Smoking intervention programs should be culturally sensitive.

◆ **Robinson, L. A., & Klesges, R. C. (1997). Ethnic and gender differences in risk factors for smoking onset. *Health Psychology, 16(6), 499-505.*** This study explored gender and ethnic differences in the risk factors associated with smoking onset in a sample of 6,967 Grade 7 adolescents (average age of 13 years). Data analyses reveal that, smoking prevalence was higher among boys and among European Americans. Among European Americans, boys and girls reported a similar number of smoking friends; however, among African Americans, boys reported having significantly more smoking friends than girls. Boys were more likely than girls to believe that smoking enhanced their image and to indicate that cigarettes are easy to obtain and are affordable. Similarly, European Americans viewed smoking more positively than African Americans and were more likely to indicate that cigarettes are easy to obtain but that they are not affordable. Differences in risk factors may explain why smoking prevalence rates in this sample are lower among girls and African Americans.

◆ **Robinson, L. A., Klesges, R. C., & Zbikowski, S. M. (1998). Gender and ethnic differences in young adolescents' sources of cigarettes. *Tobacco Control, 7(Winter), 353-359.*** This study explored gender and ethnic differences in sources through which children obtain cigarettes in a sample of 6967 Grade 7 students (49.5% male, 50.5% female; 80.8% African American, 16.5% Caucasian, 2.7% other ethnic background; average age of 13 years) from a mid-Southern urban school system. Data analyses reveal that regular smoking prevalence was higher amongst boys (5.8%) than girls (3%) and among Caucasian children (13.1%) compared to African American children (2.3%). Overall, participants were most likely to obtain cigarettes from their peers (38.4%). Girls were more likely than boys to take cigarettes without an adult's knowledge, especially in households with smokers. Boys were more likely than girls to purchase cigarettes. African American boys were more likely than African American girls to obtain cigarettes from friends. This trend was not apparent in the Caucasian sample. At an early age, children are most likely to obtain cigarettes through peers, but direct purchase by boys was common in the present study. Additionally, sources of cigarettes vary by gender and ethnicity in teenagers.

- ◆ **Valois, R. F., Dowda, M., Trost, S., Weinrich, M., Felton, G., & Pate, R. R. (1998). Cigarette smoking experimentation among rural fifth grade students. *American Journal of Health Behavior, 22(2), 101-107.*** This study investigated which variables are related to smoking experimentation among 374 rural students aged 10-13 years in the United States. Findings reveal that among Grade 5 students, 26% of boys and 16% of girls had already tried cigarette smoking. Regarding race, 25.2% of White students had tried cigarette smoking compared to 19.6% Black students. Among boys, predictors of smoking experimentation included greater age, best friend who smokes, and having tried alcohol. Among girls, being White, greater age, father who smokes, and having tried alcohol were significant correlates of smoking experimentation. Smoking intervention programs should be implemented prior to Grade 5 in rural schools.

- ◆ **Wiecha, J. M. (1996). Differences in patterns of tobacco use in Vietnamese, African-American, Hispanic, and Caucasian adolescents in Worcester, Massachusetts. *American Journal of Preventive Medicine, 12(1), 29-37.*** This study explored the differences in the patterns of tobacco use among 226 Vietnamese, 1615 Caucasian, 263 African-American, and 545 Hispanic adolescents aged 12 to 19 years in Massachusetts. The findings indicate that Vietnamese and Caucasian boys had higher prevalence rates of smoking than Hispanic and African-American boys. Few Vietnamese girls reported smoking. Older age, male gender, smoking by friends, and carrying of a weapon were risk factors associated with current cigarette smoking. Vietnamese children were most likely to indicate a perceived susceptibility to cancer and belief in the importance of not smoking for preventing cancer. This study is the first of its kind to document smoking behaviour and beliefs among Vietnamese youth.

APPENDIX E

Other Relevant Web Sites / Documents

A comprehensive review of people, programs, centres, networks, tools, research personnel/human resources, models, disciplines, tools, technologies, and facilities pertinent to teenage girls and smoking revealed that there exists few resources specific to the population of teenage girls. Included below is a list of web sites and documents that include reference material for the study of women and smoking and may be useful resources for the study of girls and smoking.

WEB SITES: (from Filtered Policy; Greaves & Barr, 2000)

Tobacco Databases/Web Sites

Alberta Alcohol And Drug Abuse Commission
<http://www3.gov.ab.ca/aadac/aadac/>

ASH US – (Action on Smoking and Health)
<http://ash.org>

ASH Canada
<http://www.ash.ca>

ASH UK
<http://www.ash.org.uk>

AIRSPACE Action on Smoking and Health (British Columbia)
<http://airspace.bc.ca/>

Alberta Tobacco Reduction Alliance
<http://www.atra.ab.ca/>

Canadian Council for Tobacco Control (CCTC)
<http://www.cctc.ca>

CCTC's National Clearinghouse on Tobacco and Health
<http://www.ncth.ca/NCTHweb.nsf>

Canadian Centre on Substance Abuse (CCSA)
<http://www.ccsa.ca>

Canadian Tobacco Control Research Initiative (CTCRI)
<http://www.ncic.cancer.ca/ctcri>

Council for a Tobacco-Free Ontario

<http://www.opc.on.ca/ctfo>

Commit to a Healthier Brant

<http://www.cyberisle.org/commit/>

NO PATSY – National Organization of People Attacking Tobacco Sales to Youth

<http://www.healthwatcher.net/nopatsy.html>

Ontario Campaign for Action on Tobacco

<http://www.ocat.org>

Ontario Tobacco Research Unit (OTRU)

<http://www.camh.net/otru/>

Physicians for a Smoke-Free Canada

<http://www.smoke-free.ca>

Senator Colin Kenny's Personal Web Site

<http://sen.parl.gc.ca/ckenny/sssssmok.htm>

Substance Abuse Network of Ontario (SANO)

<http://sano.camh.net/>

Tobacco-Free Times

<http://www.tobaccofreelanecounty.org/newsletter2001-4.html>

Tobacco News Online (scanned daily)

<http://www.tobaccopapers.org>

WHO – World Health Organization's Tobacco Free Initiative

<http://www.who.int/toh>

PAHO – Pan American Health Organization's Prevention and Control of Tobacco Use

<http://www.paho.org/>

The European Commission – European initiatives for smoking prevention

http://europa.eu.int/comm/health/ph/programmes/tobacco/index_en.htm

INWAT – International Network of Women Against Tobacco

<http://www.inwat.org>

Tobacco Control: An International Journal

http://www.bmjpub.com/template.cfm?name=specjou_tc

Tobacco Control Supersite
<http://www.health.usyd.edu.au/tobacco>

Victorian Health and Smoking Program (Quit Victoria)
<http://www.quit.org.au/>

American Public Health Association's Alcohol, Tobacco and Other Drugs Section
<http://www2.edc.org/capt/apha>

Society for Research on Nicotine and Tobacco
<http://www.srnt.org>

Smoke Screen Action Network
<http://www.smokescreen.org/login/vhome.cfm>

The State Tobacco Information Center
<http://stic.neu.edu>

Tobacco Control Resource Center
<http://www.tobacco.neu.edu>

American Psychological Association's The Addiction Newsletter
http://www.kumc.edu/addictions_newsletter

The QuitNet
<http://www.quitnet.org>

Tobacco Control Archives
<http://www.library.ucsf.edu/tobacco>

The Tobacco Institute
<http://www.tobaccoinstitute.com>

Tobacco BBS
<http://www.tobacco.org>

International Union Against Cancer's GLOBALink Tobacco Control Network
<http://www.globalink.org/globaldemo>

Government Databases/Web Sites

BC Ministry of Health and Ministry Responsible for Seniors' BC Tobacco Facts
<http://www.tobaccofacts.org>

Health Canada's Office of Tobacco Reduction Programs
<http://www.hc-sc.gc.ca/hppb/tobaccoreduction>

Health Canada's Office of Tobacco Control

<http://www.hc-sc.gc.ca/hppb/tobacco/>

Statistics Canada

<http://www.statcan.ca/start.html>

Manitoba Health

<http://www.gov.mb.ca/health>

New Brunswick Health and Community Services, Public Health and Medical Services,
Comprehensive Tobacco Reduction Strategy

http://www.gov.nb.ca/hcs-ssc/english/services/public_health/tobacco

NWT Department of Health and Social Services

<http://www.hlthss.gov.nt.ca>

Nova Scotia Department of Health, Smoke-Free Places

http://www.gov.ns.ca/health/smoke_free

Ontario Ministry of Health

<http://www.gov.on.ca/health>

PEI Health and Social Services

<http://www.gov.pe.ca/hss/index.php3>

Saskatchewan Health, Tobacco Reduction

http://www.health.gov.sk.ca/ps_tobacco_reduction.html

Gouvernement du Québec, Ministère de la Santé et des Services sociaux

<http://www.msss.gouv.qc.ca/f/sujets/tabagisme.htm>

U.S. Centers for Disease Control and Prevention's Tobacco Information and Prevention Source

<http://www.cdc.gov/tobacco/>

U.S. Centers for Disease Control and Prevention's Smoking and Health Database

<http://www.cdc.gov/nccdphp/osh/search>

U.S. Food and Drug Administration's Children and Tobacco Regulations and Information

<http://www.fda.gov/opacom/campaigns/tobacco>

The U.S. House of Representatives Committee on Commerce's Tobacco Documents

<http://www.house.gov/commerce/TobaccoDocs/documents.html>

Florida's Office of Tobacco Control's Florida Online Tobacco Education Resources

<http://www.state.fl.us/tobacco>

The Massachusetts Tobacco Education Clearinghouse
<http://www.jsi.com/health/mtec/home.htm>

Arizona Program for Nicotine and Tobacco Research's NicNet
<http://www.ashline.org/ASH/home.html>

Utah Tobacco Prevention and Control Program
<http://hlunix.hl.state.ut.us/cfhs/tpcp>

Australian Department of Health and Aged Care, Population Health Division
<http://www.health.gov.au/pubhlth/strateg/drugs/tobacco>

Miscellaneous Databases/Web Sites

Canadian Cancer Society
<http://www.cancer.ca>

Heart and Stroke Foundation
<http://www1.heartandstroke.ca/>

The Canadian Lung Association
<http://www.lung.ca>

Centre for Health Promotion at the University of Toronto
<http://www.utoronto.ca/chp>

Canadian Health Network
<http://www.canadian-health-network.ca>

Prevention Source BC
<http://www.preventionsource.bc.ca>

Tobacco Use in BC
<http://www.hlth.gov.bc.ca/tobacrs>

QuitSmokingSupport.com
<http://www.quitsmokingsupport.com/intro.htm>

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