abortion: the medical and psychological evidence. 2nd ed. Toronto: deVeber Institute for Bioethics and Social Research; 2003.
6. Thorn V. Project Rachel: faith in action, a ministry of compassion and caring. In: Mannion M, editor. *Post abortion aftermath*. Kansas City (MO): Sheed and Ward; 1994. p. 144-63.
7. Depuy C, Dovitch D. *The healing choice: your guide to emotional recovery after abortion*. New York: Fireside; 1997. p. 58.
8. Induced abortions by area of residence of patients (hospitals and clinics). Ottawa: Statistics Canada; 2005 Mar 30. Available: www40.statcan.ca/l01/cst01/health40a.htm (accessed 2005 May 13).

DOI:10.1503/cmaj.1050079

[Two of the authors respond:]

Commenting on our study of the characteristics of women undergoing repeat induced abortion,[1] L.L. deVeber and Ian Gentles imply that termination of pregnancy causes psychological problems. However, pre-existing differences between women who seek abortion and those who carry pregnancies to term are considerable and may account for differences in psychological status after abortion or delivery. A relevant comparison would assess psychological distress experienced by women seeking and obtaining an abortion and those seeking but denied pregnancy termination. Moreover, a full discussion of the possible consequences of abortion would include consideration of the considerable morbidity and mortality associated with illegal abortion.[2]

In a *CMAJ* commentary, Major[3] reminded us that "health providers and policy-makers [must] base their conclusions [about the effects of abortion] on reputable scientific research that is methodologically rigorous, conceptually sound and free from ideological bias."

The research cited by deVeber and Gentles, however, fails to meet this standard. For example, although Ostbye and associates[4] showed a greater number of hospital admissions for psychiatric problems among women who have had abortions, the most significant predictor of this finding was a history of pre-abortion psychiatric admission (odds ratio 6.58, confidence interval 2.46–17.64). Similarly, although Gissler and colleagues[5] related abortion to increased risk of suicide, they clearly stated that no conclusion about cause and effect could be made and that the association might be due to common risk factors for both suicide and abortion.

Reardon and collaborators[6] also showed a greater association between abortion and psychiatric admission among low-income women who had had an induced abortion than among women who carried their pregnancy to term. That study had a number of limitations, however, including lack of information regarding psychiatric history earlier than 1 year before abortion or delivery. On the basis of Canadian findings for psychiatric admissions before abortion,[4] it may be that greatly elevated rates of psychiatric problems precede abortion experience. Commenting on the study by Reardon and collaborators,[6] Major[3] noted that "Although it is possible that abortion leads to psychiatric problems, it is just as plausible that the direction of causality is reversed, namely, that psychiatric problems cause women who become pregnant to feel less capable of raising a child and to terminate their pregnancy."

Abortion continues to be a controversial area of research. There is no causal evidence that abortion alone elevates the risk of psychiatric admission. Observational evidence of such an association may be readily interpreted as resulting from confounding pre-existing factors.

Sukhbir S. Singh
Department of Obstetrics and Gynaecology
William A. Fisher
Department of Psychology
Department of Obstetrics and Gynaecology
University of Western Ontario
London, Ont.

References

1. Fisher WA, Singh SS, Shuper PA, Carey M, Otchet F, MacLean-Brine D, et al. Characteristics of women undergoing repeat induced abortion. *CMAJ* 2005;172(5):637-41.
2. Van Look PF, Cottingham JC. Unsafe abortion: an avoidable tragedy. *Best Pract Res Clin Obstet Gynaecol* 2002;16:205-20.
3. Major B. Psychological implications of abortion — highly charged with rife and misleading research [editorial]. *CMAJ* 2003;168(10):1257-8.
4. Ostbye T, Wenghofer EF, Woodward CA, Gold G, Craighead J. Health services utilization after induced abortions in Ontario: a comparison between community clinics and hospitals. *Am J Med Qual* 2001;16(3):99-106.
5. Gissler M, Hemminki E, Lonnquist J. Suicides after pregnancy in Finland, 1987-94: register linkage study. *BMJ* 1996;313(7070):1431-4.
6. Reardon DC, Cougle JR, Rue VM, Shuping MW, Coleman PK, Ney PG. Psychiatric admissions of low-income women following abortion and childbirth. *CMAJ* 2003;168(10):1253-6.

DOI:10.1503/cmaj.1050145

Staffing levels for long-term care

As an officer of the BC Care Providers Association (a provincial association representing both private and nonprofit facilities providing services to more than 10 000 residents in British Columbia), I read with interest the article by Margaret McGregor and associates about staffing levels at long-term care facilities.[1]

Unfortunately, the numbers of direct care hours of staff time per resident day reported in the article (e.g., in Table 1) appear suspect. The information on staffing levels was taken from essential service designations of the British Columbia Labour Relations Board, but in all cases the values appear unreasonably high. They are certainly higher than the levels of staffing possible through funding received from government or health authorities.[2] For example, the time for direct care in intermediate and extended care not-for-profit facilities is

reported as 3.41 hours per resident-day,[1] but the funding model would provide only 2.83 hours of direct care. Furthermore, facilities are usually unable to staff to 100% of the funding formula. Although it is probably true that these long-term care facilities would like to be able to staff at the "essential staffing levels" on file with the Labour Relations Board, these values do not reflect actual staffing levels. One possible explanation for the discrepancy is that McGregor and associates used data for paid hours per resident-day rather than worked hours. Paid hours include vacation time, statutory holidays and sick leave and are therefore significantly higher than worked hours, which reflect hands-on care.

Given that the validity and accuracy of the hours of care being delivered are questionable, the resulting interpretation and conclusions of the article are similarly debatable. If valid conclusions are to be drawn regarding the overall impact of staffing, staffing levels must be tied directly to outcomes and to client and family satisfaction levels. The level of staffing is obviously a critical factor in quality of care, but other factors such as experience, training, productivity and innovation can be equally important.

We believe that the major determinant of differences in staffing levels in private and nonprofit facilities relates to inconsistencies in funding. Nonetheless, excellent services are provided in both sectors, and the provincial ministry of health and the regional health authorities have not identified any differences in quality of care between not-for-profit and for-profit facilities.

Ed Helfrich
Chief Executive Officer
BC Care Providers Association
Vancouver, BC

References
1. McGregor MJ, Cohen M, McGrail K, Broemeling AM, Adler RN, Schulzer M, et al. Staffing levels in not-for-profit and for-profit long-term care facilities: Does type of ownership matter? *CMAJ* 2005;172(5):645-9.
2. Funding and Support, Continuing Care Branch. *Residential care grant funding system.* Victoria: Ministry of Health; 1994.

Competing interests: None declared.

DOI:10.1503/cmaj.1050089

[Three of the authors respond:]

Ed Helfrich writes that the staffing levels in our study[1] appear too high. However, the "funding model" to which he refers relates to funding (not staffing) guidelines developed over a decade ago by the BC Ministry of Health.[2] At the time of our study each facility was receiving a global budget and could decide how to allocate the money among staffing, administration and property costs. Our findings suggest that, with the same funding from government, not-for-profit facilities decided to allocate more of their resources to staffing than did for-profit facilities.

In addition, the funding guideline of 2.83 staff hours per resident-day applies only to "intermediate care III" residents. The same guidelines suggest 3.1 hours per resident-day for more debilitated "extended care" residents. These latter residents would partly account for the higher average staffing hours for this facility designation, as would the decision of not-for-profit facilities to put relatively more money into staffing.

Helfrich speculates that we might have used data for paid rather than worked hours. The staffing levels obtained from the BC Labour Relations Board represent counts of full-time and part-time staff positions, and the expectation is that people are replaced by casual staff for vacation and sick time. In addition, all facilities operated under a master contract with the same wages and benefits. We have no reason to believe that for-profit facilities were less likely than not-for-profit ones to replace people on sick leave or vacation.

Finally, Helfrich makes the point that if valid conclusions are to be drawn about the overall impact of staffing, this measure must be tied directly to outcomes and user satisfaction. Although there is a substantial body of published research supporting the measurement of staffing as a recognized "structural" indicator of nursing home quality,[3,4] we were careful in our article to also make this point. We hope that our study will encourage further Canadian research on this question.

Margaret J. McGregor
Department of Family Practice
University of British Columbia
Marcy Cohen
Canadian Centre for Policy Alternatives
Kimberlyn McGrail
Centre for Health Services and Policy Research
University of British Columbia
Vancouver, BC

References
1. McGregor MJ, Cohen M, McGrail K, Broemeling AM, Adler RN, Schulzer M, et al. Staffing levels in not-for-profit and for-profit long-term care facilities: Does type of ownership matter? *CMAJ* 2005;172(5):645-9.
2. Funding and Support, Continuing Care Branch. *Residential care grant funding system.* Victoria: Ministry of Health; 1994.
3. Hillmer MP, Wodchis WP, Gill SS, Anderson GM, Rochon PA. Nursing home profit status and quality of care: Is there any evidence of an association? *Med Care Res Rev* 2005;62(2):139-66.
4. Harrington C, Zimmerman D, Karon SL, Robinson J, Beutel P. Nursing home staffing and its relationship to deficiencies. *J Gerontol B Psychol Sci Soc Sci* 2000;55(5):S278-87.

Competing interests: Marcy Cohen is a researcher for the Health Employees Union (formerly the Hospital Employees Union). None declared for Drs. McGregor and McGrail.

DOI:10.1503/cmaj.1050127

Correction

In Table 2 of the article on the WOW health survey on older women's health priorities and perceptions of care delivery,[1] the heading of the second data column should have read "Priority is of some concern or importance," with the corresponding footnote worded as "Includes health priorities rated by respondents as being somewhat important. Does not include health priorities rated as being a little bit or not at all important."

Reference
1. Tannenbaum C, Mayo N, Ducharme F. Older women's health priorities and perceptions of care delivery: results of the WOW health survey. *CMAJ* 2005;173(2):153-9.

DOI:10.1503/cmaj.050975