

Epidemiology of primary health problems in Beirut

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ABSTRACT As a result of 12 years of civil war in Lebanon, it has been impossible to collect regular morbidity information at the primary level. This report is based on a case-control analysis of various health problems as identified from a population based health survey in Beirut in 1983–1984. Cases of headache, backpain and peptic ulcer, as identified from this survey of 2752 households, were matched for age, sex, and neighbourhood with controls from the same sample. Cases and controls were compared for the presence of various characteristics as collected in the household interview. Headaches were more prevalent in females and in the higher educational categories, and the odds ratio was 1.3 (95 per cent confidence interval 1.01–1.68) for the married compared to the non-married. In comparisons of backpain, the odds ratio for alcohol consumption was 2.40 (1.14–5.08), and for belonging to skilled and unskilled labour categories of occupation it was 2.33 (1.05–5.15) when the analysis was limited to the employed group only. Although the peptic ulcer cases were of lower educational background compared to their controls, no other findings were identified in this third case-control comparison. The methodological shortcomings of such studies and the various interpretations of the findings are presented in the discussion.

The delivery of health services at the primary level is hampered by the lack of appropriate knowledge about the nature, magnitude and severity of health problems within the community. This is particularly true for underserved population groups which usually need extensive services in primary health care. The protracted civil war in Lebanon and the associated conditions have increased the number of underserved. The country has also been suffering from such a dearth of data about its health problems that decisions on programme priorities have been based on inappropriate information.^{1 2}

Much of our knowledge about the epidemiology of health problems stems from studies using data sources that are based on hospitals or health services. However, community based surveys, although more representative of the general population, have recently been used to study aetiological factors surrounding the development of primary health problems.^{3–6} In a descriptive first phase, the epidemiological approach would quantify the magnitude, severity, and distribution of these primary problems. But it is

important in a second stage to utilise the analytical tools of epidemiology and clarify the aetiological relationships observed at this primary level.

Following 12 years of civil war and due to the disruption of services, it has been impossible to collect morbidity information regularly at the primary level of health services in Lebanon. Localised community based surveys in few villages and peri-urban areas over the past few years have highlighted the fact that common infectious and preventable conditions represent a large proportion of the morbidity in these communities.⁷ The Emergency Health Surveillance Program that was implemented during the summer of 1982 in three areas of Lebanon has shown that, in areas affected by the war, the more important health problems within the population were simple infections, such as diarrhoeas and respiratory infections, rather than major reportable communicable diseases.⁸

Given this state of affairs, and the urgent need for population based information on health, the Faculty of Health Sciences at the American University of Beirut initiated, in September 1983, the development of a data base that would provide a continuous assessment of the dynamics of change undergone by the population in Beirut, as well as the peri-urban and rural areas of the country. So far, five population

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based surveys have been conducted by the Faculty in various parts of Lebanon. The first activity in this programme was a baseline survey of the city of Beirut, referred to as the "Population Laboratory Survey". For the purposes of this report, data from this initial Population Laboratory Survey served as the basis for a study of specific factors associated with primary health problems identified within the community.⁹

Methods

A stratified random sample of households was interviewed with respect to their socioeconomic characteristics, morbidity experience, disabilities, environmental conditions, utilisation of health services, and perception of health. In each household, the respondent provided information on all the permanent residents of the household; the survey covered 2752 households, comprising a total of 13 735 residents. Morbidity information covered specific current ailments and chronic conditions ever experienced by members of the household. The method that was used was that of a list of tracer conditions, with a recall period of 2 weeks for acute conditions.¹⁰ Conditions for which information on potential risk factors was available in the survey data were selected for further analysis. For these conditions, cases were matched on sex and age (± 3 years) with non-diseased neighbourhood controls from the same sample, and a matched pair analysis was conducted for each relevant risk factor, as well as a logistic regression analysis including all risk factors.

Results

Table 1 lists the prevalence of the common primary health problems in the survey sample of Beirut. The case-control comparisons were conducted for headache, backpain and peptic ulcer.

Headache—Reported headache in the past 2 weeks without associated chronic or acute illness was more prevalent in females and in the higher educational categories. The case-control comparisons showed a significant odds ratio of 1.3 for the married and 2.4 for the hypertensives (table 2). A separate analysis done for the female cases with headache and their controls confirmed the observations in the total group.

Backpain—Backpain was more prevalent among females and in the lower educational categories. As seen in table 3 there was a significant odds ratio of 2.4 for alcohol consumption in persons with backpain. When the analysis was limited to the employed cases and their controls only, a significant association was observed with skilled and unskilled labour levels with an odds ratio of 2.33 (table 4).

Peptic ulcer—peptic ulcer cases were of lower

educational level compared to their neighbourhood controls. As seen in table 5, these cases also reported significantly higher numbers of other illnesses compared to their controls. No other associations were identified in this population between reported ulcer and available risk factors. In particular there was no association with cigarette smoking.

Table 1 Prevalence of primary health conditions in the population laboratory survey of Beirut

	Number currently suffering	Percent prevalence		
		males	females	total
<i>Chronic conditions</i>				
Hypertension	669	3.6	6.1	4.9
Back pain	536	2.5	5.3	3.9
Arthritis	428	1.6	4.6	3.1
Diabetes	369	2.5	2.8	2.7
Kidney stones	309	2.2	2.3	2.3
Hypercholesterolaemia	299	2.0	2.4	2.2
Ulcer	237	1.9	1.5	1.7
Asthma	211	1.8	1.3	1.5
Cataract	109	0.8	0.8	0.8
<i>Acute conditions*</i>				
Headache	648	3.2	6.1	4.7
Dizziness	201	0.6	2.3	1.5
Diarrhoea	96	0.5	0.9	0.7
Joint pain	91	0.4	0.9	0.7

* Persons who have suffered from these conditions during the 2 weeks prior to the interview.

Table 2 Results of the matched and logistic regression analyses for headache cases and controls (n = 526)

Risk variables	Matched analysis		Adjusted by logistic regression	
	OR ^a	95% CI ^b	OR	95% CI
Marital status (married v not married)	1.80	1.25-2.58	1.30	1.01-1.68
Educational level (low v middle and high)	0.67	0.50-0.89	0.90	0.79-1.17
Occupational level (low v middle and high)	1.10	0.71-1.71	1.20	0.72-1.74
Hypertension	3.00	1.65-5.45	2.41	1.31-4.41
Kidney stones	1.80	0.84-3.86	1.64	0.74-3.64
Allergy	1.64	1.03-2.61	1.54	0.96-2.48
Heart disease	1.85	0.95-3.59	1.66	0.81-3.40
Cigarette smoking	1.19	0.61-2.31	0.91	0.44-1.86
Alcohol consumption	1.54	0.73-3.20	1.04	0.17-6.22
Physical exercise	2.60	0.96-7.02	1.90	0.59-6.16
Religion (Moslem)	0.58	0.39-0.87	0.82	0.62-1.08

^a OR = odds ratio; ^b CI = confidence interval

Table 3 Results of the matched and logistic regression analyses for backpain cases and controls (all cases, n=482)

Risk factors	Matched analysis		Adjusted by logistic regression	
	OR ^a	95% CI ^b	OR	95% CI
Alcohol consumption	2.27	1.14-4.53	2.40	1.14-5.08
Religion (Moslem)	0.60	0.37-0.95	0.89	0.69-1.16
Occupational level (low v middle and high)	1.86	1.00-3.52	1.18	0.67-2.08
Educational level (low v middle and high)	0.72	0.72-1.24	0.97	0.74-1.29

^a OR = odds ratio; ^b CI = confidence interval

Table 4 Results of the matched and logistic regression analyses of the employed backpain cases and controls only (employed cases, n = 117)

Risk factors	Matched analysis		Adjusted by logistic regression	
	OR ^a	95% CI ^b	OR	95% CI
Alcohol consumption	3.67	1.11-12.07	4.67	1.21-17.90
Physical exercise	0.50	0.13- 1.94	2.57	0.58-11.36
Religion (Moslem)	0.58	0.23- 1.46	1.05	0.61- 1.81
Occupational level (low v middle and high)	2.33	1.10- 4.98	2.33	1.05- 5.15
Educational level (low v middle and high)	0.70	0.42- 1.18	.86	0.50- 1.53

^a OR = odds ratio; ^b CI = confidence interval

Table 5 Results of the matched and logistic regression analyses of peptic ulcer cases and controls (number of cases = 153)

Risk factors	Matched analysis		Adjusted by logistic regression	
	OR ^a	95% CI ^b	OR	95% CI
Educational level (low v middle and high)	2.00	1.15-3.48	1.63	0.99-2.64
Hypertension	2.18	1.09-4.38	1.74	0.86-3.50
Allergy	2.43	1.04-5.69	2.56	1.57-6.52
Kidney stones	3.00	1.14-7.86	3.25	1.13-9.38
Cigarette smoking	1.00	— —	0.99	0.29-3.34
Alcohol consumption	1.00	— —	0.87	0.34-5.49

^a OR = odds ratio; ^b CI = confidence interval

Discussion

It is very difficult to interpret the significance of associations from cross sectional survey data. Besides

a possible aetiological relationship, such an association may result from the following situations: (1) the associated finding may be a manifestation of the illness under consideration (such as the association of headache with typhoid) or the finding may be a complication resulting from the illness (such as retinopathy in diabetics); or (2) the association may be the result of a treatment or change in behaviour that follows the initial illness. For example, this may explain a low level of smoking observed in asthmatics.

It is important to consider some of the methodological issues linked with the current analysis. The Population Laboratory Survey primarily aimed at collecting prevalence data about morbidity, and therefore information items on some well known risk factors were not included in the questionnaire.¹⁰ Another important problem is that the interview data reflect perceived morbidity and not actual morbidity, which seriously limits aetiological inferences that can be made from this cross sectional study.^{11 12}

The validity and reliability of morbidity status as identified in household interview surveys as compared to morbidity identified by physicians was studied recently in Beirut by Halaby *et al* (personal communication), who established a high level of reliability of reported illness. Another problem of response validity faced by such surveys could be due to proxy reporting.^{13 14} The respondent relied upon for most of these interviews was the mother, who may be a more reliable person for purposes of proxy reporting than other members of the family.

Considering that most of the factors that were studied in these case-control comparisons do not affect the clinical duration of these conditions, methodological problems raised by a case-control study of prevalent cases were minimised.

The higher odds for headache in the married persons could be explained by differences of perception of illness and reporting of morbidity between the married and the non-married. Although perception of headaches in hypertensive individuals may be different from normotensives, the observed association in this study is probably real since the association of headache with hypertension is a previously established clinical observation.¹⁵

The observed association of drinking alcoholic beverages and chronic backpain cannot be explained by an artifact due to the process of collection of data. In addition, if alcohol was used more by the cases because of its analgesic properties, then we would have expected similar associations between the consumption of alcohol and other painful conditions such as headache and arthritis. It is possible that such an association is due to an unknown confounder. Adjustment using the multiple logistic regression did not affect the strength of the observed association.

The higher frequency of reported peptic ulcer disease in the lower socioeconomic categories confirms other observations for such an association from other countries.^{16 17} The associations with reported allergies and kidney stones are based on small numbers of these diseases and are probably artifactual. Since all three conditions that were studied in these case-control analyses are affected by pain perception, it is relevant to note that differences in pain perception have been observed in wartime. Our study of postoperative analgesia in Beirut has confirmed such variation in pain perception in this population.¹⁸

The current study has used the case-control method of analysis to identify a risk profile for some of the primary health care problems. As observed in the analysis of this data base, the epidemiological characteristics of patients studied at the level of the community may help to identify associations with health problems that may need further investigation. These associations may be due to real differences or to methodological problems, as stated previously. If there are real differences in epidemiological characteristics between cases identified at the level of the community and cases identified from the health services, then a different strategy on prevention has to be developed. Thus it is imperative that in depth aetiological investigations be conducted, based on a case ascertainment from the community, for many of the primary health problems.

Currently, a prospective follow up of the original survey population of this study is in progress. Thus it may be possible to reassess the findings of this report using a cohort technique of analysis.

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