



Trends in  
**Medical Research**

ISSN 1819-3587



Academic  
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## **Epidemiological Study of Herpes Labialis Among the Students of Golestan University of Medical Sciences in North, Iran**

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**Abstract:** This research has been set up to determine the prevalence and to recognize the effective risk factors in causing the reactivation of this abnormality. This study is a cross-sectional analytical-descriptive research, which was carried out during 2003 on the students of Golestan University of Medical Sciences. In this study, the demographic characteristic of 310 subjects was obtained using a questionnaire which was filled by the students. Fifty nine point four percent of the subject population was female. The mean age of sample population was 21.77 years. Two hundred and four subjects (65.8%) had experienced herpetic infection during their life-time. Lip was the main sites of such infection (87.56%) of the cases. Out of the above number of students 41 (13.2%) subjects had herpetic infection. The second questionnaire was given to this later subject to fill. The main question in the second questionnaire was focused on the effective risk factors of the incidence of herpetic infection. The main effective risk factors in recurrence of herpetic infection were, anxiety stress, psychological problems in 90.2% of cases and mouth manipulation 61%. We conclude that the frequency of herpes labialis in our region among the young people was higher than other published data.

**Key words:** Herpetic infection, risk factor, medical students, Golestan, Iran

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### **INTRODUCTION**

Herpes labialis or cold sores are caused predominantly by herpes simplex virus type-1 (HSV-1) and rarely by type 2 (HSV-2), which can result in significant irritation, pain, discomfort and worry (Spruance *et al.*, 2003). Acute HSV-1 infection most commonly occurs in children and young adults as gingivostomatitis, pharyngitis, or tonsillitis is readily transmitted through oral secretion (Ribes *et al.*, 2001).

This virus after inoculation in the skin or sub mucus membranes, multiply in the epithelial cells and consequently the cells lyses and local inflammation occur, which lead to creation of particular vesicles of the abnormality and finally the observation of erythma background. The lymphatic nodes and ducts in the local region are engaged with the virus though the evacuation of the released infected fluid. On the basis of the host immune system capability it is possible to notice viremia and bowels distribution of the virus.

The viruses distributed through the environmental sensory nervous system, reaches to the other mucus and skin surfaces. The infection with this virus is mild without clinical manifestation in some sensitive subjects. This infection may be lead to the some serious diseases (Whitly, 2000). Herpetic infection is considered to be the most common form of infections in human 20-40% of world population have experienced herpetic infection. The recurrence infection by the simplex herpes type-1 occurs every 5-10 years for some people and sometimes the recurrence occurs monthly. In most cases the infection with this virus are either without or with lowest clinical signs and due to latency

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characteristic. The recurrence may happen few times, in human (Spruance and Kriesel, 2002; Singh *et al.*, 2005). These recurrence in head and face area, in addition of having the discomfort, it may cause some difficulty regarding the subjects beauty.

The environmental and irritating factors effective on the infections recurrence are many and it is different from one person to another, scratching or rubbing of the primary site of the infection, excessive contact with cool humid, heat, sun light (especially sun burn), light, sticky and tight cloths, fever, some foods and additives are among the common effective factors in causing herpetic infections (Whitly, 2000).

This study was set up to investigate the prevalence of lip herpetic infections and the effective factor on the latency recurrence infections among the students of Golestan University of Medical Sciences.

## **MATERIALS AND METHODS**

In this cross-sectional study which also was an analytical-descriptive project, the sample population were 310 students Golestan University of Medical Sciences, whom agreed to fill the questionnaire, which contained two sections, the first part include the demographic characteristic and the history of herpetic infection, the numbers of infections having during a years, the number of lesions, in each times and the common sites of herpes appearance. The second section of the questionnaire was related to the incidence of herpes lesion, the numbers of lesion and the time of herpes occurrence.

The pre-existing reasons for the herpes recurrence, which can include, anxiety, worry and awaiting, manipulation in the mouth and teeth, exposure after a period of long time in front of sun and cold, facing either displeasure or unhappiness accidents, having a bad dream and finally using irritating food. Those questionnaires were filled by the subjects that had the herpes infection at the time of study. The gathered information was analyzed by SPSS software, using Chi-Square statistical tests.

## **RESULTS**

Three hundred and ten students from Golestan University of Medical Sciences participated in this study, 59.4% were female and the remaining were male subjects. The mean age of sample population in this study was 21.77 with standard deviation of 2.07.

17.4% of sample populations were married and the rest of subjects were single, 86.8% of subjects lived in the town and others resided in the villages (Table 1).

Two hundred and four persons (65.8%) from this sample population had experienced herpetic infection during their life time. There was not any significant difference between having the infection and gender, marital status, place of living whether, it is town or village ( $p>0.05$ ) (Table 1).

Lip was the sit of 87.6% of cases, 41.6% of these sample population, experienced the herpes once or twice a year. The history of herpetic infection for 56.6% of people was for more than 10 years. There was a family history of getting herpetic infection for 99 subjects (31.9%).

From the total population of 310 subjects, 41 cases (13.2%) had experienced the lesion on the time of study. From these 41 persons, 41.7 and 58.3% were male and female, respectively; the main effective risk factors in recurrence of herpetic infection were anxiety stress, worry and psychological problems in 90.2% of cases and mouth manipulation 61% (Table 2).

The results from this study showed that in 23.6, 48.3 and 25.8% of the cases the lesions were recovered in less than a week, in a week and more than a week, respectively.

The other findings out of this research indicated that, among the persons whom had the lesions, 20.8, 41.6, 25.3 and 12.4% of cases experienced, less than one, 1-2, 3-4 and more than four times in a year had the experience of herpetic infections.

Table 1: Herpes history according to the gender, marital status, place of residence

Herpes history	Gender		Marital status		Place of residence	
	Male	Female	Single	Married	Town	Village
Yes	85 (67.5%)	119 (64.7%)	163 (63.7%)	41 (75.9%)	173 (64.3%)	31 (65.8%)
No	41 (32.5%)	65 (35.3%)	93 (36.3%)	13 (24.1%)	96 (35.7%)	10 (34.2%)
Total	126	184	256	54	279	41

Table 2: The frequency of risk factors of Herpes labialis in Golestan University students

Risk factors	No. (%)
Anxiety, worry and psychological pains	37 (90.2)
Mouth and teeth manipulation and insufficient health care	25 (61.0)
Irritating food	18 (43.9)
Exposure to sun and cool	11 (26.8)
Fever	14 (34.1)
Having a bad dream at the night	10 (24.3)

## DISCUSSION

The results from this investigation showed that 65.8% of the subjects experienced this infection during their life time. A study on the students of dentistry of 18-28 years of age of Tehran during 1999 showed that 23.8% of students had the primary history of herpetic infection and 35.8% had experienced the history of secondary infection (Taheri *et al.*, 2002), which as whole 59.6% student experienced the lesion, this observation is similar to our findings. The frequency of herpes labialis in our region among the young people was higher than other published data. It means may be the effective risk factors are more prevalent in our country.

In a study on the students from Carolina university of Colombia which showed that only 28% of them had the history of herpetic infection (Gibson *et al.*, 1990).

In study which was carried out on 635 soldier in Canada it was showed that 15% of them had experienced the herpetic infection (Embil *et al.*, 1975), which was a lower incidence than our study, this change may be due to tradition and cultural differences, the scale of virus contact in earlier stage of their life and the convenient transfer and spread of viruses in the society (Liesegang, 2001).

In the study which was carried out in Iran on the university in Tehran students showed that on the time of study only 1% of the students had the herpetic infection (Taheri *et al.*, 2002).

In a study in USA on 1062 army personals it was shown that 4% of this sample population had the infection on the time of study (Shulman *et al.*, 1992).

In a study in Sweden on 20333 subjects over age of 15 years, it was shown that the incidence rate of herpes was 17.4%, in most cases the incidence of herpes was not more than once a year and herpetic infection duration was between 5-8 days (Axell and Liedholm, 1990), which is similar to the present findings.

In a study in Chile, on 1003 women it was shown that 59.4% of the above women had the experience of one to twice herpetic infection in year (Suarez *et al.*, 1990), in USA it was 51.3% (Young *et al.*, 1998), which is similar to our study. In this study the incidence of herpetic infection and its relation to the patients family, type of skin, ointment used, ethnicity and place of residence, was studied, but there was not any meaningful correlation between the above variants and herpetic infection, The numbers of lesions in each herpetic infection and the site of infection with the recurrence of abnormality, but in a study in USA which was concentrated on the history of herpes and the risk factors responsible for the recurrence, it was shown that there was a meaningful correlation between the recurrence and the herpes infection in the family, but there was not any relation between the disease, the race and the phenotype (Young *et al.*, 1998). In this study the main reasons for the herpes recurrence were psychological pain, stress, mouth and teeth manipulation insufficient health care but in a study in Norway, on 83 persons with the herpetic infection. 60% stated that sun exposure was the reason for the recurrence and for 30% stress and psychological pain was the main reason for the herpes recurrence (Laerum *et al.*, 1991).

## CONCLUSIONS

The frequency of herpes labialis in our region among the young people was higher than other published data. It means that the effective risks factors may be are more prevalent in this area. Bioenvironmental factors may be one of the reasons for the above differences. It seems further and wider investigation to determine the effective factor of either incidence or recurrence of herpetic infection accompanied with serological study are required to be able to suggest the necessary health care measurements to the society and suggest how to control the effective risk factors in the reducing the incidence and the recurrence of the herpetic infection in this society.

## ACKNOWLEDGMENT

The authors wish to thank all of the students participated in this study and filled the questionnaires, used in this investigation.

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