Frequency of acid assault in males among burn patients presenting at Jinnah Burn and Reconstructive Surgery center (JB&RSC), Lahore, Pakistan.
A cross sectional study
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Abstract
Objective: To evaluate the frequency of acid burn and to explore the underlying aetiological factors among burn patients.

Methods: The retrospective cross-sectional study was conducted at the Allama Iqbal Medical College, Lahore, Pakistan, and comprised data from May 2016 to November 2017 of all patients who suffered burns from any cause. Acid victims were defined as a person exposed to acid burn as a result of accident or assault. A self-developed proforma was used to collect relevant data.

Results: Of the total 279 cases reported, 20(7%) were acid-related, and 13(65.0%) of them were males. Family and property disputes were the major reasons behind assault in 11(55%) cases, revenge in 5(25%) and relationship break-up in 4(20%).

Conclusion: Acid calamity was found to be more against men than women.

Keywords: Acid burn, Chemical burn, Epidemiology, Acid assault, Male acid burn victims.

Introduction
Acid propelling, also recognised as acid attack, is a kind of violent attack,¹ which means to hurt or torture, or even kill.² The offenders of these attacks most of the time cause victims to blow up corrosive liquids on their faces, burn them, damage skin tissues. It exposes the bone and, at times, it dissolves.³ The most common acids used in these attacks are sulfuric acid and nitric acid. Although hydrochloric acid is at times used, it is less probable to cause injury.⁴ An aqueous solution of an alkaline substance such as sodium hydroxide, a caustic soda, is also used. In addition to social, psychological and economic difficulties, the long-term consequences of these attacks include difficulty in vision and disfigurement of the body and the burden of multiple surgeries.⁵

Since long it has been reported that acid assault is only related to females. This phenomenon has been believed to happen to females in the name of honour, relationship break-ups and revenge-taking. In some parts of South Asia, acid attacks often occur as revenge against women who say no to marriage proposals or sexual advances.⁶ An acid attack is often used to ‘punish’ the woman if she refused to earn money for husband and family. This violence is seen in societies where women are considered inferior to men. People are often assaulted because of property disputes. While it is true that females had been the target of this cruel and inhuman action, males nowadays are also seen as acid victims.

In Bangladesh, 3512 were attacked between 1999 and 2013.⁷ This type of violence is occurring all over the world, but it is most common in South Asia. Acid attacks related to crime syndromes are taking place in Pakistan, Bangladesh, Indonesia and western Europe, as well as in Greece and the United Kingdom.⁸ The stalker’s intent is often to demean rather than killing the victim. Acid assaults are less reported across the world, especially attacks on men are not reported in many official statistics because they are considered underrated; very few studies are found in this regard. A review of 13 countries was conducted in 2007 which showed 771 cases of acid burn but only 24 cases were reported as assault over 40 years.⁹ Males were more frequently sacrificed in all countries except Bangladesh and Taiwan. In Cambodia, males and females are almost equally⁹ victimised.

The current study was planned to explore the frequency and reasons of acid burn among patients at a tertiary care hospital.
Materials and Methods
The cross-sectional study was conducted at the Jinnah Burn and Reconstructive Surgery Centre, Lahore, Pakistan, and comprised records from May 2016 to November 2017 of data related to acid burn patients. After approval from the institutional ethics committee, data was retrieved manually from the hospital records of individual files of every victim using purposive sampling. The study was focussed on acid victims and in-patients were included. Adult acid burn victims of either gender aged >18 years were included in the study. Patients whose primary cause was other burns like flame and chemicals were excluded. Demographic questionnaire was developed in the light of literature and it included gender, age, education, marital status, area of residence, total burn surface area (TBSA), assaulted body parts, assaulted by, and the reason of assault. Data was entered in an Excel sheet. Frequency and percentages for demographic variables, like TBSA, affected body part and reason for assault, were calculated.

Results
Of the 279 cases, 20(7%) were acid-assaulted cases. Of the 20, 13 (65%) patients were males, while 7(35%) were females. Overall, 13 (65%) victims were married (Table 1). All the female victims were aged <40 (range: 18-37 years). However, male victims were aged >30 years (range: 22-55 years). Mean TBSA in males was 23+15% while in females it was 22+14.

Among the males, 6 (46.2%) got assault on face, scalp, arms, chest and back, while 5 (71.4%) of the females had face and arms mutilation. None of the females had lower limbs assaulted whereas 4 (30.8%) of males had lower limbs, like buttocks and the genitoperineal area, involved (Table 2).

Family and property disputes were the major reasons in 11(55%) cases, revenge in 5 (25%), and relationship break-up in 4(20%) cases (Table 3).

Discussion
The study was conducted with the aim of assessing the frequency of acid burn among males in Pakistan because since long this had been understood that this phenomenon only targets females. The study concluded that acid assault was 30% higher in males than females, as reported in recent studies in the United Kingdom and South Asia. In one study, 68.9% of acid burn victims were males.12,13

In the current study, 20 of the 279 burn cases were acid-assaulted (7%). Countries with highest reported incidence are Cambodia (20%), Iran (11.5%) and Bangladesh (9%). Across the world, the most reported vulnerable age range for assault is 13-4. In the current study 70% victims were aged 18-37 years for both genders. The results of the current study showed that 13 (65%) victims were married and 9(45%) of them were males, indicating that reasons other than emotional, like family dispute, dispute at workplace and rivalry, makes males more prone to be assaulted. For females, the reasons were more emotional and related to break-ups. A study concluded that 71.2% victims were married and in 32.2% cases the attack was
carried out by spouse, which was not seen in the current study. Drug abuse was also not a reason in our findings as reported in other studies.

Looking at TBSA, the mean score showed that males had greater TBSA than females. The main aim of the acid attack is mutilation, which is shown by results of this study as mostly upper body parts, like head, face, chest and arm, were burnt in both genders, whereas only one male had the genitopreal area burnt and this only case was assaulted by a female out of revenge. Face involvement was 71.4% in females in the current study. One study concluded that face was involved in 86.7% of the cases. In other studies face involvement was 78%, 20-22

Results showed that lack of education may be increasing the incidence of assault as the educational status showed none of the victims had been to school except one female who had graduated.

Most of the victims (55%) were assaulted due to dispute in the family and at workplace, whereas the second most reported cause of assault was revenge. However, only 20% victims were abused due to break-ups and emotional disturbances. These findings are similar to those seen in developing countries. In developed countries, the incidence is low, although there is a recent surge in the United Kingdom, which is related to gang crimes.

Though the findings have unveiled the truth, the notable thing is that 80% of the offenders were also men whereas only 5% were females. Similar findings were noted in other studies as well. Thus the irony of the fact is that victims and crooks are both from the same gender, which shows low tolerance among males.

The current study has some limitations which include the secondary nature of the data of only those patients who had non-accidental chemical burns. The data relates to a single tertiary care centre, and the nature of the chemical and source is unknown.

The findings strongly suggest the non-governmental organisations (NGOs) and other organisations need to shift their focus in terms of creating awareness about the male cases, caring and supporting for the victims by providing interventions.

The government should take serious action against the accused and make laws to ensure that the accused are punished. Access to such chemicals should be strictly banned and monitored. Finally, further studies are required to furnish prospective data for statistically significant results.

Conclusion
Acid assault was found to be more common among males than females. Acid burn calamity is not an incident which happens only to females, rather, as the study found, it is more common in males.

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References
15. None.
16. None.
17. None.

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