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| **Author/study year** | **Study design** | **Participants** | **Area Focused** | **Main Findings** |
| ([Hassan, Nasir et al. 2017](#_ENREF_1)) | cross sectional descriptive | 70 welders | Eye, Burns and injury | Poor awareness and education in welding profession  Lack of standardized eye shielding  Poor Health and injury support |
| ([Kamal and Rashid 2014](#_ENREF_4)) | Cross sectional study | 20 mechanics, 20 painters  20 control | Blood samples | Painters are more prone to Benzene exposure  Poor ventilation system, poor PPE and hygiene state and uncontrolled use of chemicals |
| ([Kamal and Malik 2012](#_ENREF_2)) | Survey and Experimental Study | 29 Painters  25 Mechanists  20 Control | Hematological evidence to exposure to chemicals | Awareness about use of PPE is to be enhanced |
| ([Kamal, Qayyum et al. 2011](#_ENREF_3)) | Experimental Study | 20 Painters  20 Mechanists  20 Control sample | Evaluate the blood naphthalene levels (NAPH)  evaluate blood naphthalene | Poor work place Hygiene and long exposure are major factor of exposure.  Smoking and non adherence to PPE are major personal factors. |
| ([Meo, Azeem et al. 2003](#_ENREF_5)) | Matched case control cross sectional | 50 non smoker welders | Lungs, Respiratory area | Welders showed a positive indication of lungs disease in the absence of PPE |
| ([Shaikh 2001](#_ENREF_6)) | Cross Sectional Survey | 208 welders |  | Lack of awareness and relevant education |
| ([Shaikh and Bhojani 1991](#_ENREF_7)) | Cross Sectional Descriptive | 36 welders | Eye injuries, Burns | Poor education & awareness  No use of protective equipment  They rate the occupation hazardous / nonhazardous based on their experience |

Table No 1. Studies on the use of safety measures in informal (welding & spray painting) sector in Pakistan

Hassan, S. M., U. Nasir, K. Anwar and U. Talib (2017). "An assessment of the level of awareness and reported complaints regarding occupational health hazards and the utilization of personal protective equipments among the welders of Lahore, Pakistan." International journal of occupational and environmental health **23**(2): 98-109.

Kamal, A. and R. N. Malik (2012). "Hematological evidence of occupational exposure to chemicals and other factors among auto-repair workers in Rawalpindi, Pakistan." Osong public health and research perspectives **3**(4): 229-238.

Kamal, A., M. Qayyum, I. U. Cheema and A. Rashid (2011). "Biological monitoring of blood naphthalene levels as a marker of occupational exposure to PAHs among auto-mechanics and spray painters in Rawalpindi." BMC Public Health **11**(1): 467.

Kamal, A. and A. Rashid (2014). "Benzene exposure among auto-repair workers from workplace ambience: A pioneer study from Pakistan." International journal of occupational medicine and environmental health **27**(5): 830-839.

Meo, S. A., M. A. Azeem and M. Subhan (2003). "Lung function in Pakistani welding workers." Journal of occupational and environmental medicine **45**(10): 1068-1073.

Shaikh, M. (2001). "Hazard perception and occupational injuries in the welders and lathe machine operators of Rawalpindi and Islamabad." Journal-Pakistan Medical Association **51**(2): 71-73.

Shaikh, T. Q. and F. A. Bhojani (1991). "Occupational injuries and perception of hazards among road-side welding workers." J Pak Med Assoc **41**(8): 187-188.