



## Hand washing concerns and trends of male chefs/cooks working in hotels and restaurants: A survey in Karachi-Pakistan

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### Abstract:

*Food is a part and parcel of every body's life. But if food is contaminated while cooking by hands so may spread food borne infection and thus a serious public health concern. In the current study, the practices of hand washing by chefs in their restaurants/hotels were investigated. The survey was exclusively conducted on 180 male participants belonged to 20% big and well developed hotels and found most of them 32% work for 1<sup>st</sup> quarter of a day . The survey results also point out that 67% participants knew the importance of hand washing and 45% of respondents suffered from*

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*stomach diseases as only 27% of chefs wash hands with plain water. A healthy majority around 91% workers wash hands before cooking meal and for hand washing timing 86% of them spend less than 1 min. This report illustrates that 4% thought that hand washing cannot transmit diseases and 47% workers wash hand after attending toilet however. This report shows that 25% workers know the proper procedure of hand washing.*

**Key words:** contamination, food, handwashing, soap, unhygienic

## **Introduction**

Food poisoning or food borne infection are the illnesses caused by consumption of food containing bacteria, viruses or other pathogens (Humphrey *et al.* 2007, Tribe *et al.* 2002). Several health agencies and scientists who have worked on food related diseases have reported because of unhygienic food consumption there are high chances of getting different serious diseases of prime concern e.g. diarrhea (Wilson 2005, Argudín *et al.* 2010). Diseases owing to having microbial contaminated food accounts for 5000 deaths, 325000 hospitalization (Mead *et al.* 1999) and 76 million illnesses in the United States only (Imee *et al.* 2007). In the recent past as the demand for meals at restaurants had significantly increased so that the concerns about hygiene issues also got importance speedily (Imee *et al.* 2007). Hand washing has always been a concerning issue and factor among food handlers in restaurants (Fendler *et al.* 1998). For centuries there has been tremendous stress on the importance of proper hand washing in order to prevent the bioburden of gastrointestinal diseases (Fendler *et al.* 1998), infections (Bryan, 1982) intoxications (Lukinmaa *et al.* 2004) illnesses and outbreaks (Souza *et al.* 2003; Souza *et al.* 2005). More often rather a very well established fact now that majority of food borne diseases is the cause of improper hand

washing or lack of hand washing among the food handlers (De Waal *et al.* 1996; FDA. 2004; Wanyenya *et al.* 2004, Gilling *et al.* 2001). Like in other countries, Pakistan is also facing a boom in restaurant industry. People are now being attracted more and more towards these glamorous places and also due to economical stress, below average community while work rely upon outside food and so suffer with GIT problems. As, past tract record in literature indicate that to date there has been no study on hand washing practices in such restaurants in Pakistan This study was conducted to fill out this gap in the current knowledge and to find out the extent to which hand washing is done by chefs in the restaurants of Karachi.

### **Materials and Methods:**

The survey was carried out on chefs who have been working in various restaurants and hotels of Karachi-Pakistan. Primarily, the targeted restaurants and hotels were those who were in access of common, average and below average class social status. The questionnaire was designed to determine the level of hand washing practices among these workers. The sample size was 180 male restaurant/ hotel workers. Male population was chosen deliberately because they often work in the city for cooking food of common people. The questionnaire was also rechecked by the concerned experts for the sake of correction. They were selected randomly from different locations in Karachi Pakistan during a period of four months i.e. January-April, 2012. The questionnaire is only based on yes or no reply. Moreover, questionnaire was also translated in urdu which is the mother tongue in Pakistan for better comprehension. This effort was done to engage more participants in the study and provided convenience for those respondents who were not good at English. As, some of the workers belong to different native places of Punjab, Sindh and

NWFP. So, in order to make them understand the study purpose, local translators in their own languages were also hired.

## **Results and Discussion**

Improvements in the hand washing procedures are of immense importance to prevent the spread of diseases through infected food (Imee *et al.* 2007). However, there are certain basic problems or barriers that are present which restrict the food handlers/ chefs from hand washing (Clayton *et al.* 2002). These barriers include short time for food preparations (Green *et al.* 2006), poor food handling precautions (Clayton *et al.* 2002), inadequate kitchen policies, bad supervision (Green *et al.*, 2005) lack of equipment for hand washing (Dippold *et al.* 2003) and lack of other necessary commodities like soap, hot water and towel (Howes *et al.* 1996). Besides these highlighted barriers, some other studies have found that hand washing practice, although being very important, are yet at alarmingly low rate or at least priority of people (FDA 2004). According to the survey report, the illiterate chefs in this study were 62% while literate accounted for 32% as indicated in Fig 1. The hotels that were included in the study were 20% big and well developed, 27 % were moderate or medium level, 16% were small and majority of them were below average as mentioned Fig 2. This survey also indicates the workload and found that 32% work for 1<sup>st</sup> quator of a day, 23% for 12 hours, 33% for 8 hours and 12% for 4 hours as mentioned in Fig 3. The survey results also point out that that 67% participants knew the importance of hand washing, 63% were aware of hand washing practices ,23% frequently perform hand washing and 32% were aware of the usage and benefits of antibacterial soap as mentioned in Table 1. This survey also draws the attention that 45% of respondents suffered from stomach diseases, 18% never

faced any disorder, 11% only have some occasional diseases and 26% did not remember that they had suffered from any complication as in Fig 4. Another point that was noted 27% of chefs wash hands with plain water, 24% practices hand washing with antibacterial soap and majority 49% of them use just plain water for hand washing as in indicated in Fig 5.

This report indicates that 23% hotel workers are used to wear gloves regularly, 23% uses gloves sometime, 11% mostly forget to use gloves and most of them 43% of hotel workers never use gloves as pointed in Fig 6. Moreover, it was shown that 91% workers in the restaurants wash hands before cooking and 22% after cooking, 9% does not wash hands before preparing meal and 79% does not wash hands after making food as in Fig 7. Similarly, as far as hand washing timing is concerned, 86% workers spend less than 1 min and on the other hand, 10% spend more than 1 min as in Fig 8. In the same connection, 64% of workers do hand washing before handling fruits 64% and 28% before handling vegetables as mentioned in Fig 9. This report illustrates that 4% thought that hand washing cannot transmit diseases, 55% were aware of the fact that diarrhea can transfer by hands, 66% knows that dirty nails can cause infection and 54% also answered that coughing and sneezing can cause infection if not wash hand properly as pointed out in Fig 10. Another finding was that 22% participants had not well enough knowledge of germs, 16% did not know about germs at all, 11% heard the word germ for the first time in life and 50% had a good knowledge of word germs as in Fig 11. This report indicates that majority 46% do not have soap, 14% do not have soaps in their near premises and 40% have an access of soap in their working are as in Fig 12. This survey report shows that 47% workers wash hand after attending toilet however; 15% forget to wash hand, while; 16% occasionally wash hand and 21% do not wash hand at all after attending toilet as indicated in Fig 13. This report shows that

25% workers know the proper procedure of hand washing, 17% was not aware of and 55% have some level of knowledge as in Fig 14. Another finding was 37% of chefs use the method of air drying, 16% do not remember to dry them, while 21% dry hands with towel and 24% workers use shared towel among their colleagues as mentioned in Fig 15. In another study from Australia it was reported with the aid of video camera observation that the major causes of food borne diseases were: poor hand washing technique, no hand washing before making food, improper kitchen cleaning, animals presence in kitchen, constant touching of face, nose and hairs while making food and limited number of shared towels for drying (Jay *et al.* 1999). Furthermore, the presence of *Salmonella*, *Campylobacter*, *Escherichia coli* and *Staphylococcus aureus* species has been demonstrated to be the result of no or improper hand washing procedure (Gorman *et al.* 2002). Till recent times many food borne disease outbreaks have been seen in different areas of the world especially in Western Europe i.e. Austria, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Sweden, Switzerland, and the United Kingdom however surprisingly enough among the effected people those who eat at house accounted for only 12% (Anonymous 2001).

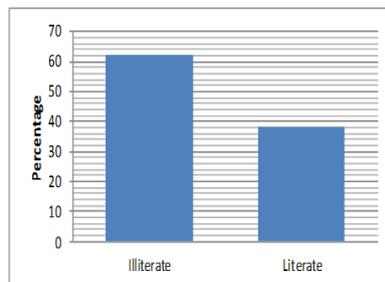


Figure 01: This figure shows that illiterate participants in the study were 62% while literate accounted for 32%.

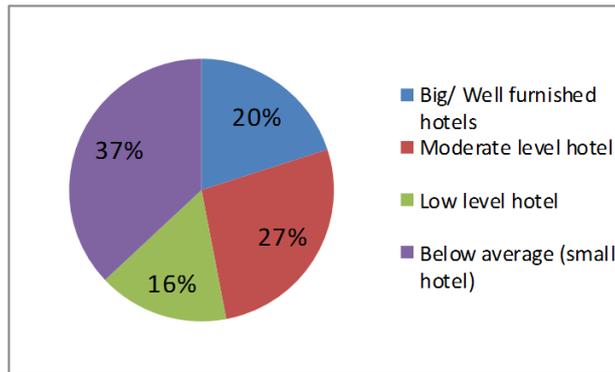


Figure 02: The figure shows the percentage number of different hotels that were selected for the study.

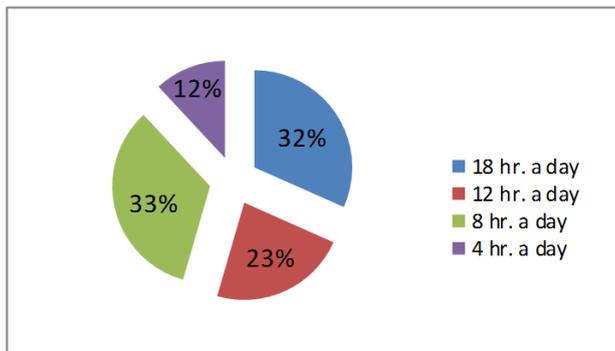


Figure 03: This figure shows the amount of workload in different restaurants

Table 01: This table shows the percentage of awareness and importance of hand washing among study participants..

Category	Yes	NO
Importance of hand washing importance	67	33
Awareness of hand washing practices	63	37
Frequent hand washing	23	77
Awareness of antibacterial soap	32	62

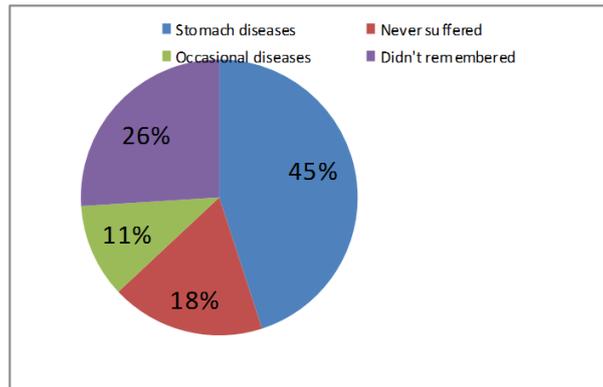


Figure 04: Shows the percentage of diseases that the participants reported to had suffered.

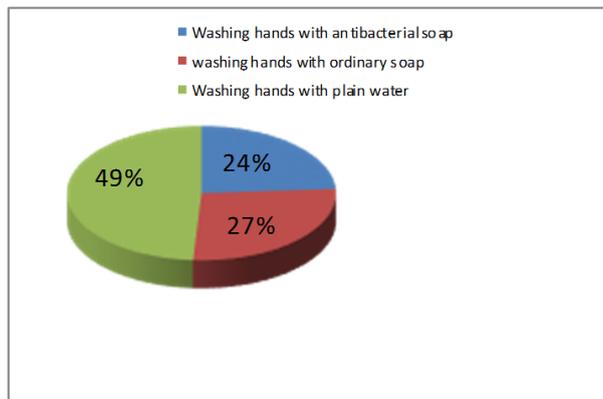


Figure 05: It illustrates the way hand washing is being carried out in the community.

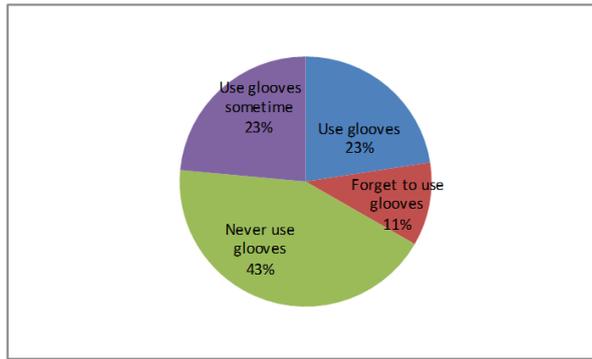


Figure06: It illustrates the percentage of using gloves in these restaurants

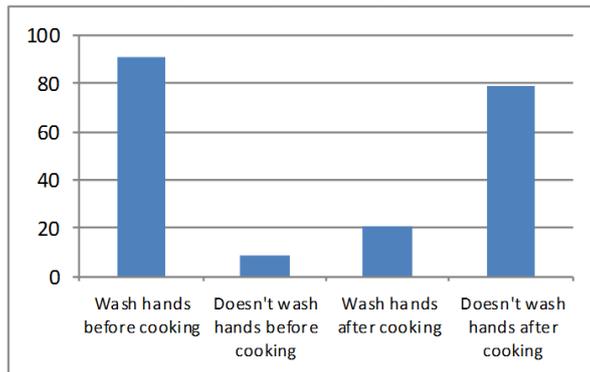


Figure 07: This figure shows the percentage of hand washing before and after cooking.

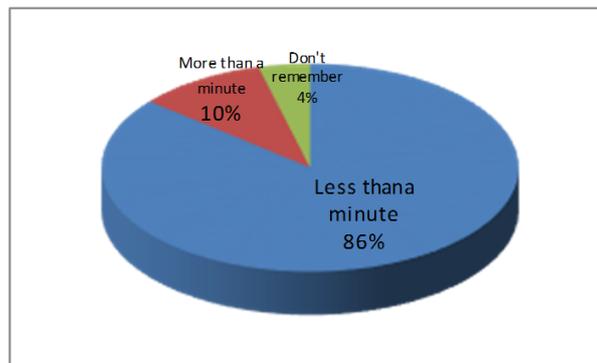


Figure 08: Show the percentage of hand washing timing.

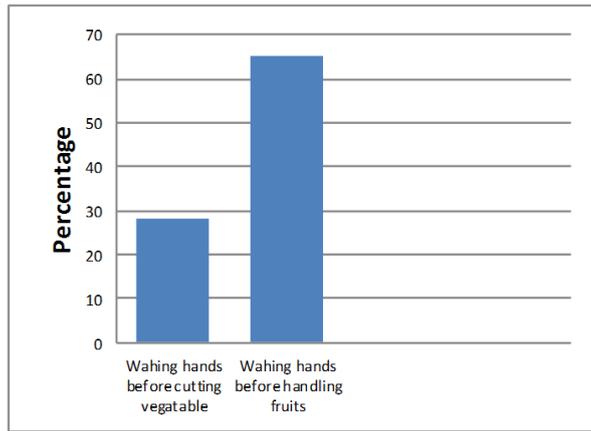


Figure 09: It shows the percentage of hand washing before handling different food items.

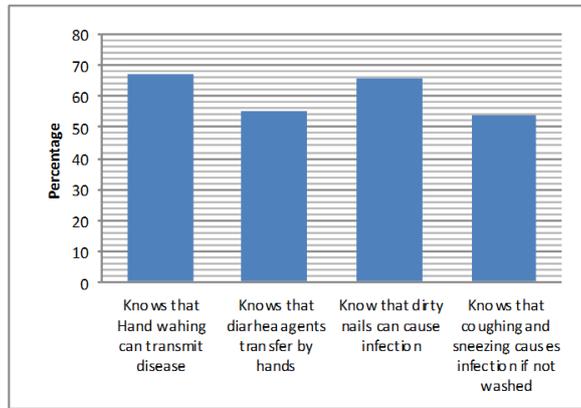


Figure 10: It illustrates the percentage to different questions related to germ transfer through hands

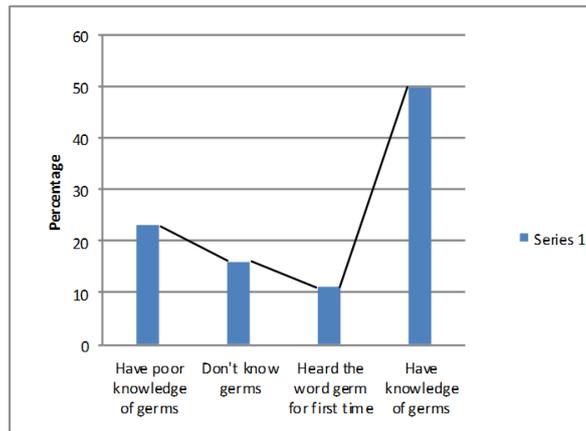


Figure11: This figure shows participants knowledge of germs.

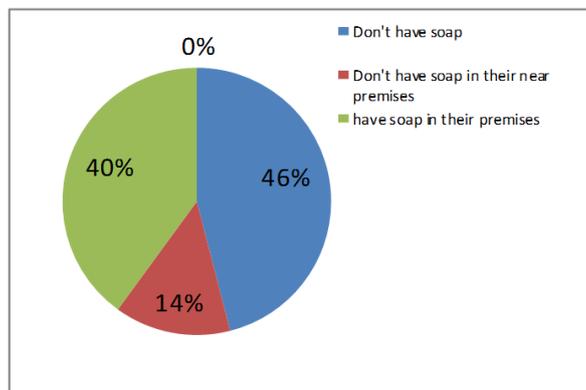


Figure 12: This figure shows the facts about soap availability

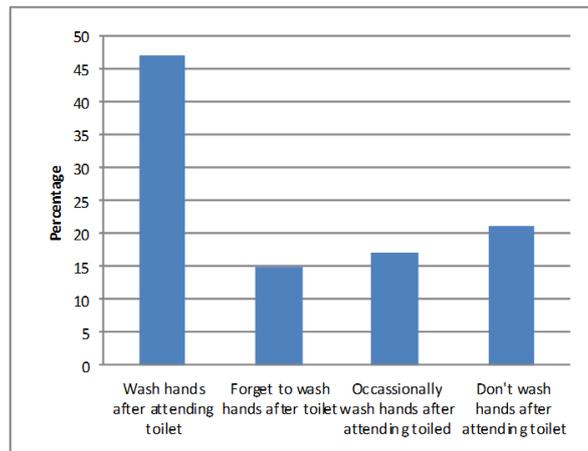


Figure13: This figure shows the hand washing frequency after attending toilet.

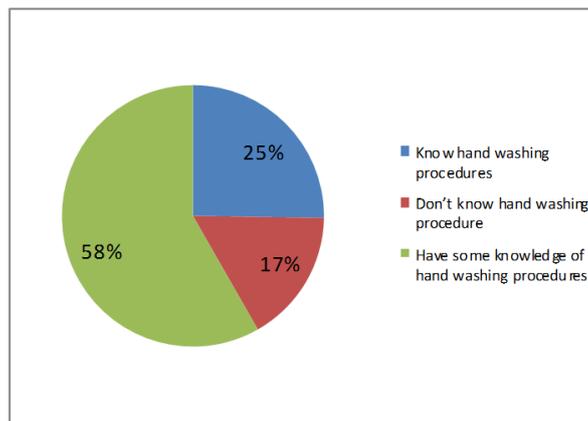


Figure 14: Show the knowledge of participants about technique in hand washing.

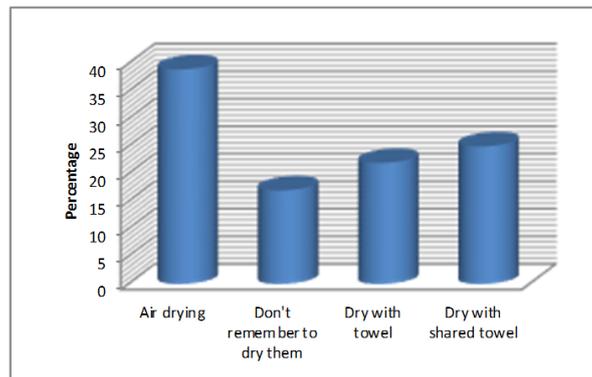


Figure15: This shows the percentage of different means of hand drying after hand washing.

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