Poor knowledge – predictor of non-adherence to safety precautions for blood borne pathogens at first level care facilities in Pakistan

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What I'll be talking about…

- Background
  - Health care practices that put health workers at risk of BBPs in Pakistan
- Objectives
- Methods
- Important findings
- Conclusions

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Unsafe injections-infections: risk to Health care workers

- High injection use in health care sector
  - annual per capita ratio of injections: 13.6
- >50% of injections provided with used syringes
  - Transmission of hepatitis B & C virus- consistently reported
- In Pakistan prevalence of Hepatitis B and C is very high- ranged from 5-10%
  - recent:18% HCV in a community in Karachi
- Reuse involve manipulation of injection equipment
  - Needle stick injuries

Syringes in pot to be reused

Inappropriate disposal

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Injection use/reuse

Medicine/injection rack

Injection boiler-often cold

Legacy of inappropriate sharp waste disposal

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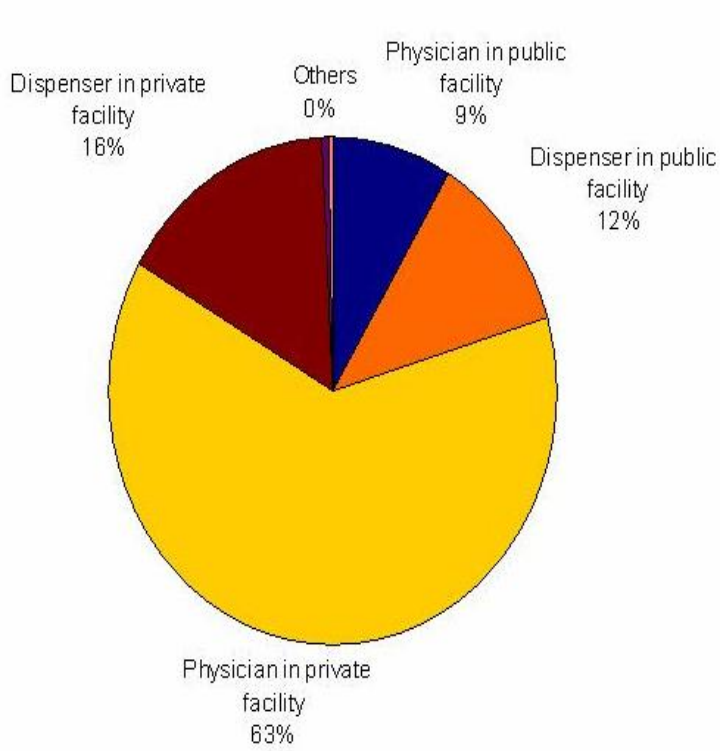
Health care workers' risk - private sector

- >80% of care and 80% of injections
- Not regulated- no registration of clinics
  - No standards for clinic services and manpower
  - 50-80% of their patients receive injections
  - >50% with reused syringe
- A typical clinic of GP
  - 1-2 room
  - 1 table for practitioner- provide consultation, don't administer injection
  - Patient's waiting area –charge .5$ -1 $
  - Fees-out of pocket- no insurance
  - A dispensary- injection room with a dispenser- mostly unqualified



Janjua et al. Int J Qual Health Care 2005;17:401-08

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Health care workers' risk - private sector

- Majority of the Health care workers (HCW) in the private sector professionally unqualified
  - Not aware of the risks associated with their work
  - No issues have ever been raised regarding risk to their health
- Public sector slightly better but not better off
  - Provide fewer injections
  - HCW have some level of qualification
  - No system of occupational safety

Objectives

- To assess knowledge, and use of safety precautions for blood borne pathogens (BBP) at first level care facilities (FLCF) in two districts of Pakistan.

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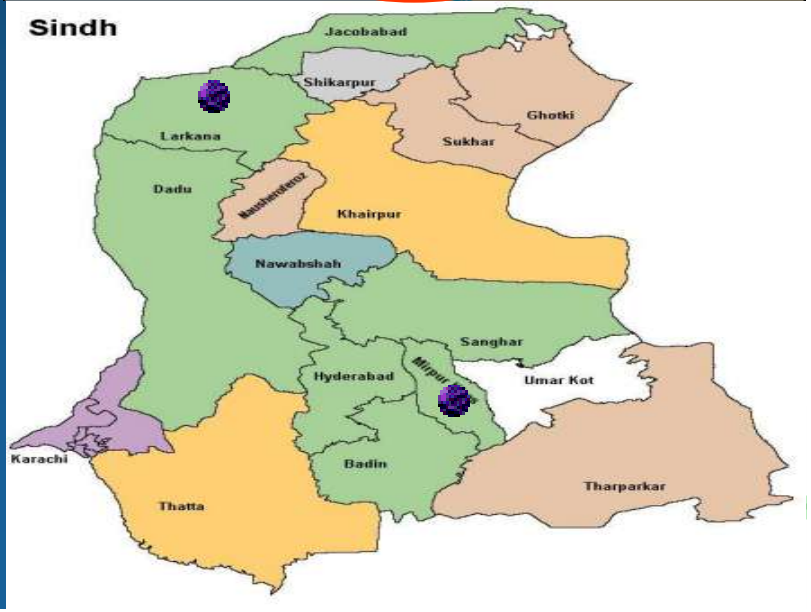
Design and Methods

- Design
  - Cross-sectional survey
- Setting
  - 2 rural districts in Sindh Province Pakistan



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Design and Methods

Study population

- HCWs working at public and private sector first level health-care facilities (FLCF) in the study districts
- Those in direct contact with the patients or equipments used on patients
- Typically 3 categories of HCWs
  - Prescribers –provide consultation and prescribe medication (Could be qualified MBBS or unqualified (non-MBBS) practitioners
  - dispensers –dispense drugs and provide injection
  - Housekeepers- cleaning

Design and Methods

Type of clinics

- 3- ownership and qualification
  - public
  - Private General Practitioners (GPs) and
  - Unqualified practitioners (Quacks)

Sampling - clinic selection

- Random sampling from within each strata
- Sampling frame- compiled list of all facilities
- From each clinic one person from each of the HCW categories

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Design and Methods

Interview and questionnaire

- Final yr medical students interviewed HCW at clinics using a pretested Urdu translated questionnaire

Questionnaire

- professional qualifications and years since start of practice
- knowledge about blood borne pathogens transmission
- Safety precautions at work place as open ended question
- workplace risk perception regarding likelihood of getting infection measured on a scale of 1 -very low to 5 - very high
- perception about likely outcome if get needle stick
- needle stick injuries during past six months and one year and circumstances surrounding latest injury

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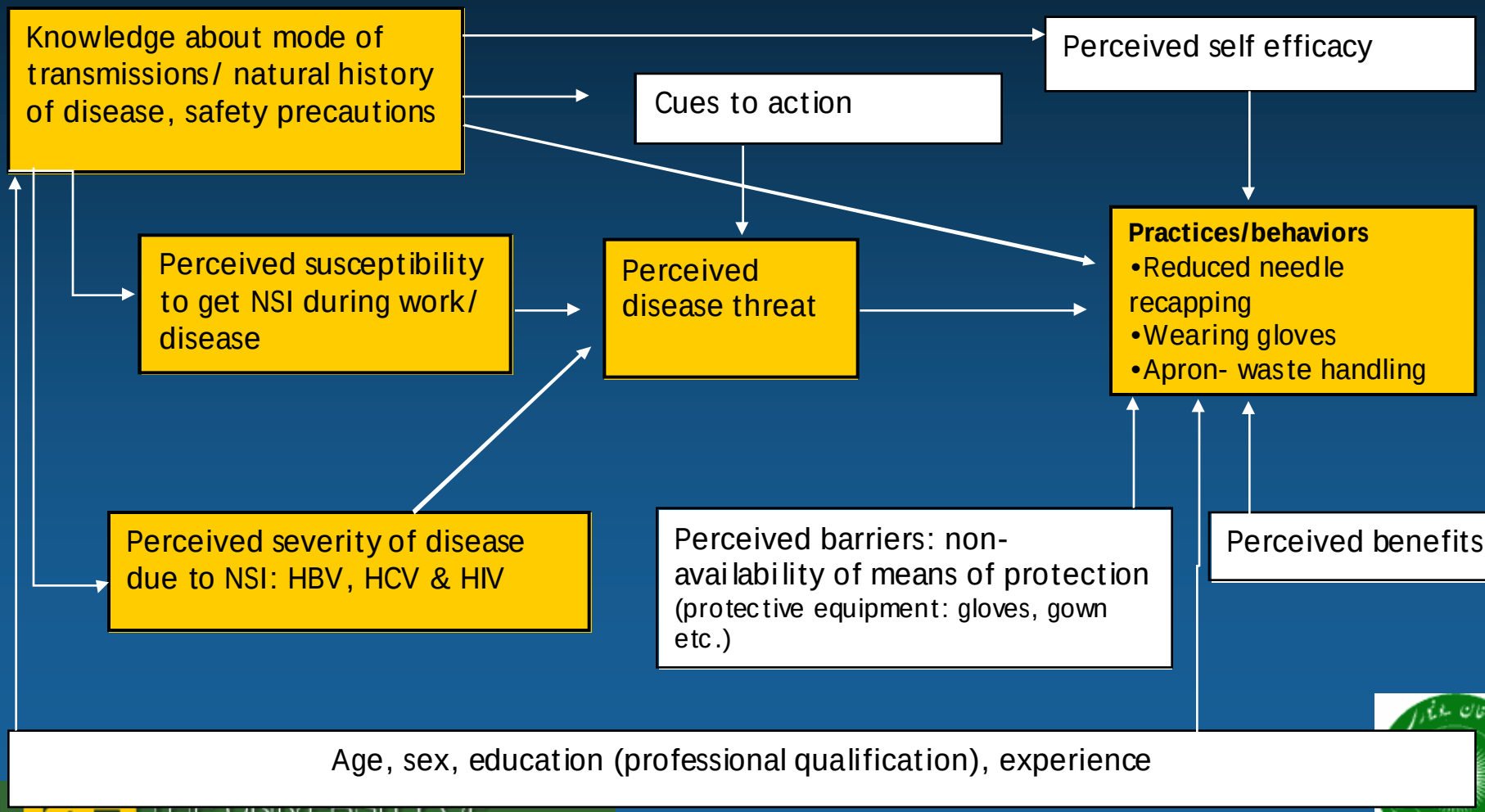
Conceptual Model-Health belief model



Statistical analysis

- Knowledge score -11 items
  - 10 (yes=1 no=0) items about mode of transmissions of HBV/ HCV, and transmission of HIV through reuse of syringes,
  - one item about infectious agent with highest likelihood of transmission with reuse of syringe or needle stick injury

- Practice of safety precautions score- 4 items
  - vaccination for HBV (yes/no)
  - use of gloves
  - use of gown
  - recapping of needle after injections
    - measured on a scale of 0=never to always=3 and
    - recapping was reverse coded so that 0=always and 3=never

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Statistical analysis

- Multiple linear regression analysis to assess the relationship of modes of transmission knowledge score, safety precautions knowledge score, perceived risk at work place, perceived severity of disease due to NSI at work place, age, work experience, respondent type and qualification with the practice of safety precautions score.

Characteristics of health care workers

N=329

Characteristics	n	%
District		
Mirpurkhas	137	57.3
Larkana	101	42.3
Area		
Urban	55	23
Rural	184	77
Facility by owner		
Public	39	16.3
Private	200	83.7
Facility by major provider		
Public physician	29	12.1
GP (Private)	128	53.8
Unqualified Practitioners	81	33.9

Characteristics of health care workers

Characteristics	n	%
Age (years)		
Mean age of respondent (SD)	30.0	(10.76)
Respondent type		
MBBS prescriber	42	17.6
Non-MBBS prescriber	22	9.2
Dispenser	166	69.5
Housekeeper	9	3.8
Professional qualification		
MBBS	42	17.6
Nursing diploma	20	8.4
B-Pharmacy	56	23.4
Dispenser /lab technician diploma	12	5.0
Homeopathy	30	12.6
No professional education	79	33.1
Years of work experience		
1st (0-3)	60	25.1
2nd (4-7)	60	25.1
3rd (8-14)	66	27.6
4 (>14)	53	22.18
Mean years of work experience	9.55	(7.6)

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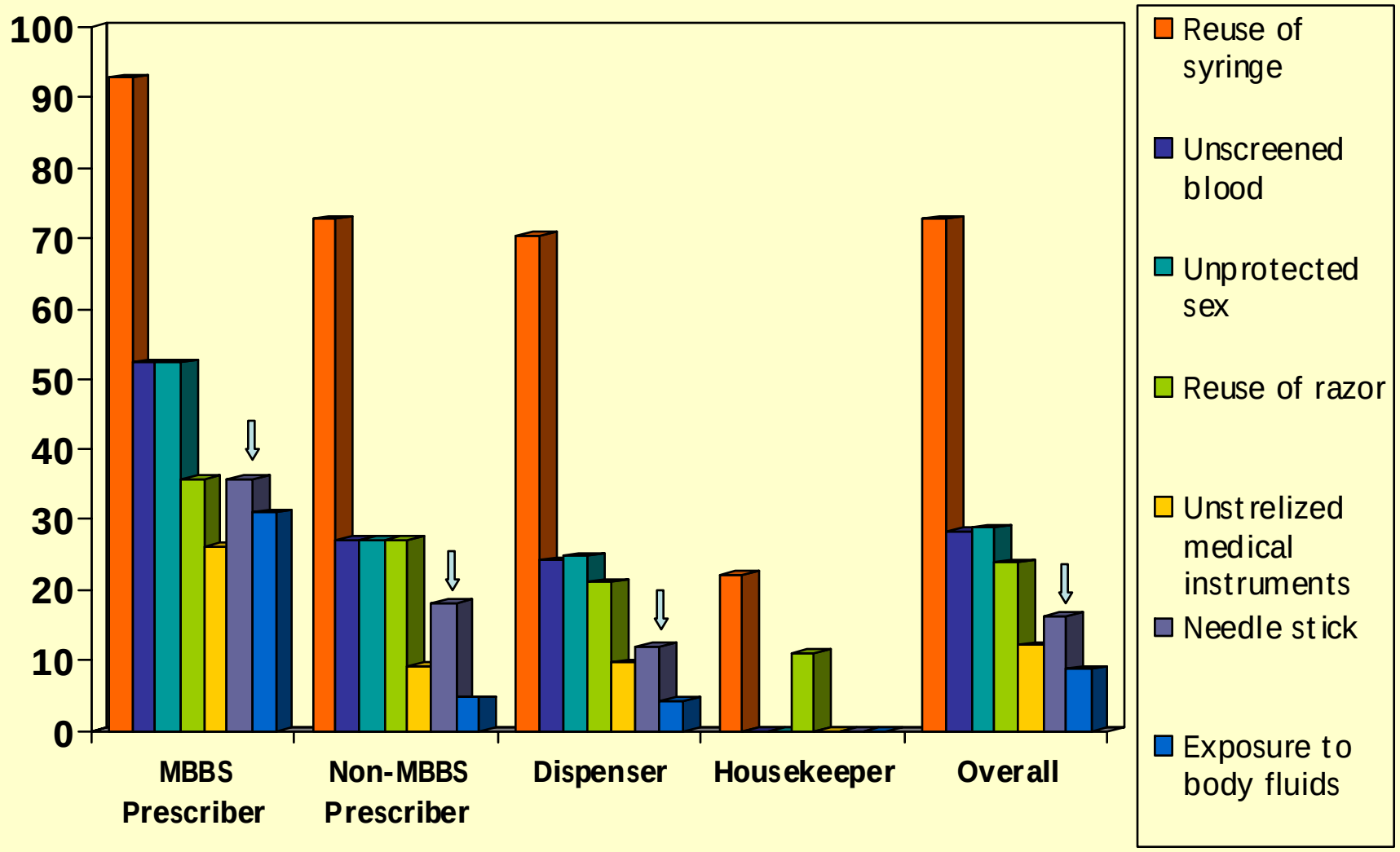
Knowledge of health care workers about modes of transmission of hepatitis B & C



Practices of health care workers for protection from workplace exposure

Items	MBBS Prescriber		Non-MBBS Prescriber		Dispenser		Housekeeper		Overall	
	n	%	n	%	n	%	n	%	n	%
Completed HBV vaccination	35	83.3	8	36.4	70	42.2	7	77.8	120	50.2
Wear gloves										
Never	15	37.5	11	52.4	82	50.3	3	50.0	111	48.3
Occasionally	5	12.5	3	14.3	38	23.3	2	33.3	48	20.9
Most of the times	13	32.5	4	19.0	16	9.8	1	16.7	34	14.8
Always	7	17.5	3	14.3	27	16.6	0	0.0	37	16.1
Wear gown										
Never	29	69.0	16	72.7	129	78.2	2	66.7	176	75.9
Occasionally	11	26.2	5	22.7	23	13.9	0	0.0	39	16.8
Most of the times	1	2.4	1	4.5	5	3.0	0	0.0	7	3.0
Always	1	2.4	0	0.0	8	4.8	1	33.3	10	4.3
Needle recap after use										
Always	24	57.1	14	63.6	98	59.4	1	50.0	137	59.3
Most of the times	1	2.4	1	4.5	23	13.9	0	0.0	[illegible]	[illegible]
Occasionally	2	4.8	3	13.6	16	9.7	0	0.0	[illegible]	9.1
Never	15	35.7	4	18.2	28	17.0	1	50.0	48	[illegible]

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Predictors of safety precautions score

Models	Univariate models			Multivariable model		
Variables	**β**	***P***	**R^2**	**adβ**	***P***	**95% CI**
					<0.001	aR^2 =0.093
Knowledge mode of transmission score	0.22	<0.001	0.06	0.18	0.003	0.06-0.29
Knowledge of precaution score	0.34	0.071	0.01			
Perceived susceptibility of acquiring infection at workplace	0.02	0.885	0.00			
Perceived severity of disease	0.35	0.001	0.05			
Age	0.05	<0.001	0.07			
Years of work experience	0.07	<0.001	0.07	0.06	0.001	0.02-0.09
Respondent type						
MBBS prescriber	1.75	0.008	0.04			
Non-MBBS prescriber	0.57	0.021				
Dispenser	0.62	0.486				
Housekeeper	Ref	0.375				
Professional qualification						
MBBS	1.73	<0.001	0.09			
Nursing Diploma	0.74	<0.001				
B-Pharmacy/Homaopathy	0.98	0.143				
Dispenser /lab technician	1.01	0.002				
No professional education	Ref	0.108				

Key conclusions

- Knowledge of HCWs about BBPs exposure and prevention is very low
- Safety Precautions that can reduce risk of exposure are used less often
  - Implications for transmission infections to HCWs
  - Health of HCWs and community which they serve
  - Calls for program to educate HCWs about the risk at their work place and how to manage the risks
  - Regulatory framework for health system including registration of clinics and entry level training in infection control

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Conclusions

- Knowledge level of even qualified practitioners is not impressive- assessment of medical/ nursing curricula for adequate infection control education
- Since knowledge is the only predictor, measures to raise knowledge level could be first step

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Thank you!