

# Effectiveness of pack intervention in the health care profession community on patients satisfaction

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## Author's Contribution

<sup>1</sup>Substantial contributions to the conception or design of the work; or the acquisition

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## ABSTRACT

**Objectives:** To explore the factors that measured the patient satisfaction Measurement Tool (PS-MT) after the implementation of the Practical Approach to Care Kit at Primary healthcare centers of Lahore, Pakistan with health professionals who had been trained in the protocol.

**Methodology:** A cross-sectional study through semi-structured interviews were carried out with doctors and nurses working at Primary health care tiers / Basic Health Units (BHUs)/ Dispensaries in the metropolitan city where the protocol was implemented. Descriptive information was represented in the form of a frequency table and graph and paired t-test was applied on pre and post changing and facilities provided to patients on primary health centers.

**Results:** 100 subject index consisting of doctors, nurses and paramedics who participated in the study were trained with the practical approach to the care kit at primary health centers, BHUs and dispensaries of the metropolitan city of Lahore. The majority of the participants were male. After the intervention, a significant difference was found in healthcare provider behavior which was measured at p-value 0.02 and health information system at p-value 0.000

**Conclusion:** We founded significant change after the implementation of the Practical Approach to Care Kit at primary healthcare centers of Lahore in health professionals who had been trained in the protocol.

**Keywords:** Primary Healthcare, Intervention, Protocols, Implementation, Health Professionals, Patient satisfaction

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## Introduction

The Alma Ata Declaration, a document from the International Conference on Primary Health Care held on September 12, 1978, is a landmark in this sense. It is from then on that the concept of health has been strengthened as a state of complete well-being (physical, mental, and social), and not simply the absence of disease. The Declaration aims to encourage the promotion and protection of people's health, emphasizing that these are the responsibility of governments and that they can only be achieved through primary health care.<sup>1,2</sup>

Pakistan Federal Constitution stipulates that access to healthcare is the right of every citizen and the duty of the state. The regulation of the public health system in Primary healthcare centers of Lahore, Pakistan sets out

three levels of care, with primary care being the preferred gateway to the system.

Adequate financing, a lack of a political commitment to raise the quality of primary care, as well as the qualifications, level of knowledge, and skills of health professionals working in BHU and RHU are some crucial factors for increasing the population's access to healthcare, and the uniformity and effectiveness of the care provided. However, a strong network of basic health centers (BHUs), with health care professionals is responsible for coordinating the care of individuals and families, and for intersectoral actions for health promotion and disease prevention.<sup>3,4</sup>

Data from 2016 identified that health teams in Primary healthcare centers of Lahore, Pakistan has shown positive effects on the population's health, such as the reduction of

infant and under-5 mortalities, that ultimately decrease the number of patient hospitalizations due to causes related to primary care.<sup>5</sup> Despite advances made by the Punjab government after decentralization, many challenges remain concerning structural, organizational, and professional practices. Clinical protocols can be used as tools to promote professional development, standardization of care, and ensuring the quality of diagnoses and therapies based on scientific evidence.<sup>6</sup> In the context of primary care, given the epidemiological and social diversity of the problems that health professionals face, the protocols can guide conducts and procedures, improve the success rates of the health team and assist in planning care within the healthcare system.<sup>7</sup>

The Practical Approach to Care Kit (PACK) is a protocol focused on professional development and the quality of primary care. It was developed and tested over the past 15 years by the Knowledge Translation Unit at the University of Cape Town, South Africa.<sup>8</sup> It is a tool to support clinical decision-making (a set of algorithms) integrated with a training and implementation strategy based on the principles of educational extension. The PACK aims to train doctors, nurses and other health professionals to diagnose and manage the common conditions of adults in primary care, covering symptoms and chronic conditions.<sup>8</sup>

All the content of the PACK is aligned with the Best Practice educational resource (from the British Medical Journal Editorial group), which ensures that it is constantly updated based on the best scientific evidence available.<sup>9</sup> It has been tested in four major clinical trials in African countries in the past decade. The results point to the effectiveness of the intervention in promoting modest but consistent changes in a series of behaviors and health outcomes; promoting improvements in the care of infectious and chronic non-communicable diseases simultaneously; and promoting improvements in quality of care indicators.<sup>10-13</sup>

In November 2019, the PACK implementation process was initiated in Primary healthcare centers of Lahore, Pakistan. PACK was chosen to conduct the pilot study. The implementation process included: adapting the protocol to the situation in Primary healthcare centers of Lahore, Pakistan, so that it could be modified according to the epidemiological scenario and health system in Primary healthcare centers of Lahore, Pakistan; choosing and training tutors to carry out training for health professionals in basic health centres; delivering protocols

to primary care health centres and training health professionals; making a preliminary assessment of the effect of the PACK training on the diagnosis and treatment of clinical conditions.<sup>14</sup>

To achieve their potential for improving clinical practice and people's health, not only great care to be taken in their development, but also there should be activities to evaluate their implementation.<sup>15</sup> Thus, factors that facilitate the use and obstacles that impact the use of the protocol can be identified.<sup>16</sup>

Wong et al<sup>17</sup> pointed out that the results of complex interventions are highly context-dependent, and different contexts can change the processes by which interventions produce their results. Context can be defined as the set of organizational resources and opportunities available to participants in an intervention, encompassing organizational structure and human interaction, as well as the professional training and motivation of the personnel involved, and is influenced by the broader political environment.<sup>[18]</sup> The PACK programme consists of four pillars: the provision of clinical decision support in the form of the PACK Guide, a training programme, and the improvement and tracking and assessment elements of health systems, intended to support health professionals in providing policy-aligned, systematic, and coordinated primary care. There were also significant improvements in the use of hospitals, including declines in the length of hospital stay. Concurrent qualitative work found higher job satisfaction for health staff, with health workers becoming more motivated to deal with primary care realities on the ground.<sup>19</sup>

## Methodology

This was a cross sectional study. Convenient sampling technique was used 100 healthcare providers for training of PACK protocol were taken for this study. The study took place in Lahore, chosen as a pilot city for the implementation of the pack in primary healthcare centers of Lahore, Pakistan. Openepi tool was used for sample size calculation. The thematic matrix grouped the interview data into two themes: facilitators of the implementation of the PACK; and obstacles to implementing the PACK. 15 doctors and 35 nurses and 50 paramedical staff were included in our study. The interviews took place in the research participant's workplace, between October 2019 and March 2020. The duration of the interviews was on average 30 minutes. After the interview, the participants answered a

questionnaire that included questions about age, training received and length of service at the health centre.

**Inclusion Criteria:** A sample of 15 doctors, 35 nurses and 50 paramedical were invited to participate, all of whom had undergone training in the PACK at Primary healthcare centers of Lahore, Pakistan. The invitations to participate in the interview were made by telephone or personal visit with the Incharge of each primary healthcare centre. This Incharge subsequently chose at least one doctor and one nurse from the clinic to participate in the research. Data saturation was used to define the number of respondents. In Lahore city, total 34 basic Health Unit and 5 Rural Health Units are present. We selected 19 basic health units and 3 Rural Health Units in our study. 15 doctors 35 nurses and 50 paramedics staff who consented for the training were included in our study.

**Exclusion Criteria:** all other doctors, nurses and paramedics who did not consent to participate in the study were excluded.

The analysis was carried out on SPSS- Version 23 version for the comparison among the different parameters. Descriptive parameters were explained in the form of tables and graphs. Paired sample t test was applied on data and checked significance at p-value less than 0.05. The study was approved by the Ethics Committee of the University of Lahore.

## Results

The doctors, nurses and paramedical staff were trained with the PACK protocol for a period of 6 month. After the completion of training the data was collected from the health care professional about the improvement due to the training of the pack. Their response was calculated through paired t-test before and after the training. It was concluded that there was a lot of improvement, knowledge and behavior of the healthcare professional towards the patients.

Out of 100 health care workers 15 were doctors, 35 were nurses and 50 were paramedical staff. Figure 1

As per designation all the health care providers were medical officers. Out of all 10 medical officers, 7 were males and 3 were females, while out of all RHC medical officers 4 were males and one was female. Figure 2

The experience of health care providers played an important role in learning and implementation of PACK protocols at BHU and RHCs. The doctors, nurses and

paramedics experience was recorded in different categories. 3 healthcare providers had experience <1 years, 12 had experience 1-3 year, 11 healthcare providers showed their experience 3-5 year and 9 had >5 years' experience. On other hand according to experience of RHC health care providers, one-person experience was 1-3 year, three respondents showed their experience as 3-5 year, one-person experience was >5 years as shown in figure 3.

1<sup>st</sup> hypothesis is significant difference in healthcare professionals after training of hospital management information system with p value 0.002 software before and after intervention at primary health care centers'. 2<sup>nd</sup> hypothesis is significant difference in healthcare professionals after training of hospital management information system with p-value 0.000 software before and after intervention at primary health care centers'.

3<sup>rd</sup> hypothesis is a significant difference between hospital management information systems with p value 0.001 software before and after intervention'.

4<sup>th</sup> hypothesis is a significant difference in doctors and paramedical staff ability about hospital management information systems with p-value 0.028 before and after their training.

5<sup>th</sup> hypothesis is a significant difference in nursing staff knowledge after the hospital management information system with p = 0.003 before and after their training.

The second part of the study was about the patient satisfaction before and after the pack training in the healthcare professionals. Out of 400 patients 222 belongs to urban area and 178 were belongs to rural area. Out of 222 patients 100 patients were visit to BHU and 122 visits to RHU. Out of 178, 90 patients were visit to BHU and 88 were visit to RHU. Figure 4

Out of 400 patients 50(12.5%) patients were presented with age group of 20-30 years, 55(13.75%) patients were belonging to age group 31-40 years, 60 patients were involved to age group 41-50years(15%), 70 patients were involved to age group 51-60years (17.5%) and 125(31.25%) patients presented with age of 61 years and above. Out of all 212(56.3%) respondents were males and 188(47%) were females. 27(6.75%) respondents were unemployed, 57 were unskilled, 58 were skilled, 60 were semi-skilled, 52 were clerical/semi-shop owner, 75 were Ssmi-professional and 71 were professionals. 30 respondents were Literate, 50 had primary education, 49 were Middle passed, 75 had metric level education, 66

were Intermediate passed 50 were Graduate and 80 had Masters level of education. 208 respondents belonged to the Rural area (52%) and 192 belonged to the Urban area (48%). 95 respondents were married (23.75%), 100 patients were Divorced (25%), 115 patients were widow (28.75%) and 90 patients were unmarried (22.5%). Socioeconomically most of the cases had middle socioeconomic status. Most of the patient’s visits purpose was vaccination and treatment followed by diagnosis and surgery as shown in Table I.

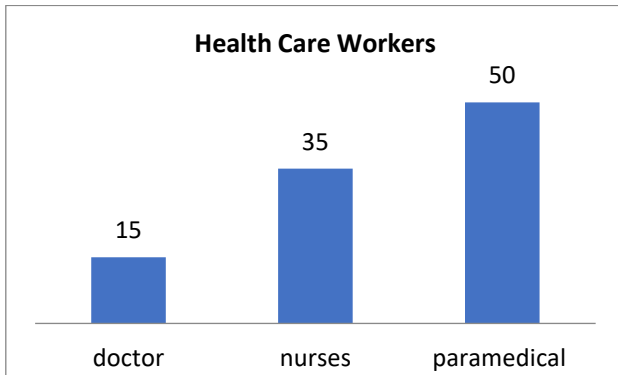


Fig:-1 Health care workers

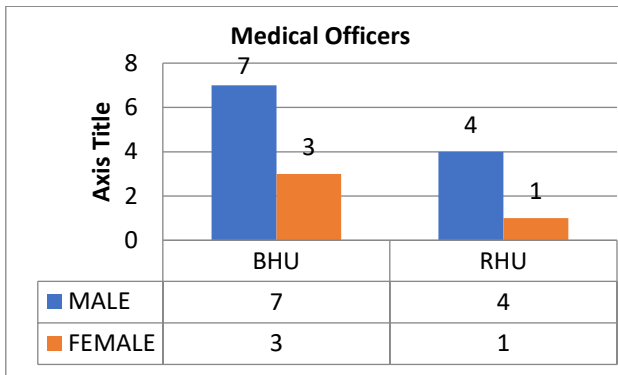


Figure 2. Medical Officers

**BHU Interpretation:** The subject index was divided into two groups according to their area i.e. Rural and Urban. The total no. of patients included in this study were 300. Out of which 133 respondents belonged to rural area (44.33%) and 167 respondents were belonging to an urban area (55.67%).

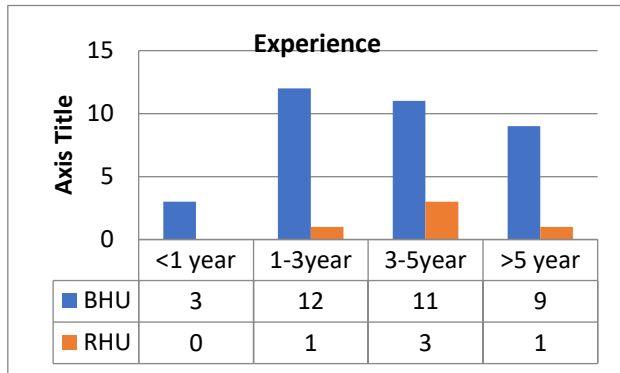
**RHC Interpretation:** The subject index was divided into two groups according to their area i.e. Rural and Urban. The total no. of respondents included in this study were 100. Out of which 40 respondents were belong to rural area (40%) and 60 respondents were belonging to urban area (60%).

**Table I: Socio-demographic characteristics of the participants**

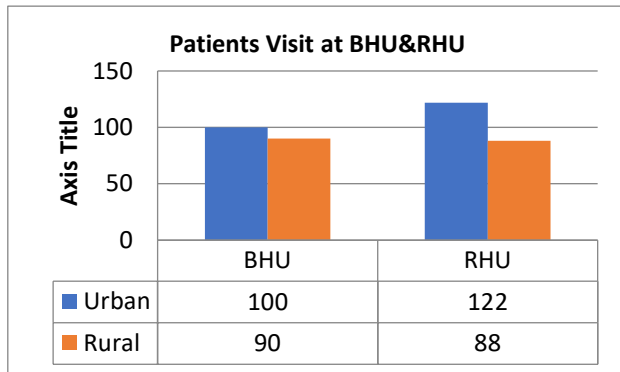
Variables	N	%	
Age	20-30 Year	50	12.5
	31-40 Year	55	13.75
	41-50 Year	60	15.0
	51-60 Year	70	17.5
	61-above	125	31.25
	Total	400	100.0
Gender	Male	212	53
	Female	188	47
Occupation	Unemployed	27	6.75
	Unskilled	57	14.25
	Skilled	58	14.5
	Semi-skilled	60	15
	Clerical/semi-shop owner	52	13
	Semi-profession	75	18.75
	Profession	71	17.75
Total	400	100	
Education	Literate	30	7.5
	Primary	50	12.5
	Middle	49	12.25
	Metric	75	18.75
	Intermediate	60	16.5
	Graduate	50	12.5
Masters	88	20	
Total	400	100.0	
Marital status	Married	95	23.75
	Divorced	100	25
	Unmarried	115	28.75
	Widow	90	22.5
	Total	400	100.0
Ethnicity	Rural	208	52
	Urban	192	48
	Total	400	100.0
Income	0 – 20000	95	23.75
	20000 – 40000	90	22.5
	40000 – 60000	115	28.75
	>60000	100	25
	Total	400	100.0
Patient type	In patient	175	43.75
	out patient	225	56.25
	Total	400	100.0
Purpose of visit	Diagnosis	55	13.75
	Vaccination	90	22.5
	Treatment	105	26.25
	Surgery	80	20
	follow up	40	13.3
	Total	100	100.0

**Tables II: Paired sample t test Differences**

Hospital management information		Mean	Std. Deviation	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)
<b>Pair-1</b>	<b>1<sup>st</sup> hypothesis</b>	1.1429	.32280	.00340	.22517	10.095	99	.002
<b>Pair -2</b>	<b>2<sup>nd</sup> hypothesis</b>	1.067	.64098	.828	1.306	14.690	99	.000
<b>Pair -3</b>	<b>3<sup>rd</sup> hypothesis</b>	1.428	.35504	.02090	2.619	12.380	99	.001
<b>Pair -4</b>	<b>4th hypothesis</b>	1.785	.23761	0.935	2.348	9.375	99	.028
<b>Pair -5</b>	<b>5th hypothesis</b>	1.345	.45852	0.4522	1.982	9.923	99	.003



**Figure3. Experience**



**Figure 4. Number of Patients Visit at BHU&RHU**

## Discussion

The main results of the analysis of the interviews revealed facilitators for the implementation of PACK related to the high level of acceptance of the protocol among the health professionals, to train and the structure of the protocol. The obstacles highlighted were related to issues involving health professionals and to organizational factors.

The facilitators for using the PACK demonstrated in this study are related to the characteristics of the intervention itself. In other words, The PACK implementation activities involved the location of the protocol and its training by a team at Primary healthcare centers of Lahore, Pakistan. The process started in 2019 and culminated in 2020 with the e-book version of the

PACK.<sup>15</sup> The PACK was developed taking into account the previous experiences in other countries and the prerequisites listed in the scientific literature on the implementation of protocols<sup>16,17</sup>, such as adaptation of the material to the epidemiological scenario of the implementation; making the material easy to use; varied forms of access; and support from local and central management. From the interviews, it can be seen that the efforts made during the process of implementing the PACK were reflected in the high level of acceptance of the protocol and training by health professionals. The PACK was considered by the interviewees to be simple to use (after training) and easy to access. The positive acceptance among the health professionals interviewed also confirmed the findings in the previous training study carried out with the PACK tutors.<sup>18</sup>

For the PACK training, the results of this research showed its importance for understanding and using the protocol. The methodology used during the PACK training was highly praised by the interviewees, which confirms what the literature has found regarding the use of active and interactive strategies as facilitators in the implementation of interventions in primary care when compared to the simple distribution of materials.<sup>19</sup> Besides, our findings corroborate the article published by Bachmann et al. (2018), which demonstrated that health professionals who received the PACK training improved treatment based on guidelines in spirometry for asthma, compared to those who only received the protocol without training. The interviewees also accepted the transferability of the training, as no cultural barriers related to the primary healthcare were reported about a methodology that was created in another country.<sup>20</sup>

As for, the obstacles to the implementation of the PACK, three situations related to health professionals were cited. Firstly, as shown in the scientific literature, the confidence of the interviewed professionals in their own clinical experiences represented an obstacle to the use of the PACK. Secondly, the individual preferences of health professionals regarding other materials and protocols

were demonstrated in this study, as well as in similar studies.<sup>21</sup> According to Jun et al, materials from reputable professional institutions or organizations can be more valued and preferred over materials from other less recognized sources. An example of this was found in our study was the greater appreciation of the nursing protocol at the expense of the PACK. And thirdly, an obstacle was revealed, which according to the study by Correa et al., (2020) occurs when health professionals realize that the protocol has limitations related to their choices of therapy and in their autonomy to prescribe treatments. According to the interviews conducted for this study, an example of this situation was linked to the restricted list of drugs presented in the PACK.<sup>22</sup>

The implementation of the PACK took place at a time when austerity measures were being imposed by the Primary healthcare providers at the centers of Lahore, Pakistan, which may have had a direct or indirect influence on the obstacles related to organizational factors found in this research. As previously reported, the implementation of the PACK took place with local support, to identify the best conditions for the use of the protocol by health professionals. However, the demanding workload faced by the interviewees was reported as being an obstacle to the use of the protocol. This seems to be a frequent problem described in the literature during the implementation of protocols.<sup>23</sup> Overcoming this obstacle is a common challenge for public health systems, which in turn are vulnerable to neoliberal policies. Organizational factors must be taken into account during the planning and implementation of programs in primary care, as they affect the work schedule of health professionals.

The form of active learning provided by the PACK training was positively received by the interviewees. This suggests that adopting the PACK methodology to other areas of ongoing education in primary care could be rewarding.

Ongoing training can be thought of as a way to increase the motivation to use the protocol since some interviewees reported using the PACK more at the time of training.

Primary care in the city where the protocol was implemented is considered a benchmark for the rest of the Primary healthcare centers of Lahore, Pakistan. It is, therefore, possible to say that such professionals would in turn be more critical and proactive in the search for different scientific evidence to support their practices. In this case, the PACK would be considered just one among

many protocols available. Different results regarding the use of PACK can be found in other more remote cities in Primary healthcare centers of Lahore, Pakistan that may have difficulty attracting professionals and accessing information and/or internet networks.

Another characteristic of the context in which the PACK is implemented is related to the existence of a nursing protocol that is widely recognized and used by nurses in the pilot study, and that in turn competes with the use of other protocols. In places where nursing protocols are non-existent, the PACK can be used more effectively.

The suggestions raised as a result of the interviews show that there is an interest in improving the PACK, especially in making it an even faster search tool and in including more situations focused on the epidemiological profile of the basic health centers. Certainly, there will not be a single protocol capable of covering all the demands found by health professionals, but if the intention is to implement the PACK in other cities in Primary healthcare centers of Punjab, Pakistan, it may be necessary to review the location of the material again, as well as to reevaluate the facilitators and obstacles to using the material.

## Conclusion

The implementation of protocols in primary care can be a challenge, especially when it is intended to adapt materials from different socio-cultural environments. This study showed that the efforts made by the PACK Primary healthcare centers of Lahore, Pakistan implementation team were reflected in the interviewees' positive acceptance of the protocol. However, individual and organizational aspects of the context studied proved to be obstacles to the use of the PACK Primary healthcare centers of Lahore, Pakistan. It is hoped that the findings of this study may be useful for improving the implementation of the PACK Primary healthcare centers of Punjab, Pakistan, as well as contributing to research in the area of health assessment.

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