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Perception of Nursing Students about Problem Based Learning (PBL) in Nursing Institutions of Peshawar, KPK, Pakistan

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Abstract:

Objective: To assess the perception of nursing students about problem based learning in nursing institutions in district Peshawar, KPK, Pakistan.

Methodology: A simple cross-sectional study designed was used to collect data in two weeks duration via self-administered questionnaire in a sample size derived 80 baccalaureates nursing students in the selected nursing colleges of Peshawar. The questionnaire contained demographic data, a section about institution in which uses of different teaching methodologies, knowledge about PBL, and PBL enhancing learning responses to dichotomous answers. Data analysis was done on SPSS version 20. Descriptive and inferential statistics were calculated for various variables.

Result: The participants ratio were male 41 (51.3%) and female 39 (48.7%). In response to teaching methodologies used an institutions were “face to face” (100%), PBL develop confidence in self directed learning (97.5%), multiple responses were stand (95%) for PBL activate and organize prior knowledge, identify students weaknesses for improvement, learn more in active participation, improves self directed learning skills and students motivation, improve critical thinking ability were (93.8%). PBL can improve quality of education (88.8%), curriculum should be completely PBL based were (38.8%) and the remaining (61.2%) were not in favour of completely PBL based curriculum.

Conclusion: In some nursing institutions students are expose to PBL and practicing it while in others it is quite a possibility of implementing its integral part in nursing curricula by keeping its benefits in mind.

Keywords: Problem based learning, perception, critical thinking, self-directed learning, nursing education

1. Introduction

The process of learning as old as human existence and it continues from entrance to this world till the exit from this world. We inherit the desire of knowing things in our surrounding. Every individual has the capacity of distinct capabilities of acquiring new knowledge because of the inner curiosity about a phenomenon, qualities like mind grasping power, intelligence, reasoning power, as well as methodology of teaching. It is quite obvious that depending on the type of learner’s specific mode of teaching can maximize the desired changes in knowledge, behaviours, skills, and attitude. Long before, human used to utilize plant leaves as a paper, black coal as an ink and a piece of wood as a mean of writing. However, variety is the spice of life and human nature as well, slowly and gradually with the passage of time input of the technology (utilization of computers, Multimedia, projectors, internet devices) in classroom based learning made a drastic affects on teaching and learning process. Human almost become an addict of technology not because of its dependency but it’s the need of daily living and survival. The various methods of knowledge transfer like lectures, small group discussions, bed side teaching, assignments, tutorials, E-learning and problem based learning (PBL), simulation etc are available for teaching nursing sciences. In these methodologies PBL got fame after its introduction in medical universities in all over the world and researches suggests some positive change and effects on students, as they deal the problems in the real world and thus helpful in practical settings.

Education is one among the basic rights of human and it's the responsibility of the state to ensure maximum facilitation to increase the literacy rate of country. According to literacy rate of Pakistan (2013), current literacy of Pakistani is 56% and is expected to reach 61 % in 2015. In this regard, sometimes it is difficult for students to continue their lifelong learning which is the prime purpose of being educated. People join jobs after some learning and just work like machines which stop their continuous professional growth and development. Many research studies provide useful information about PBL; that it enhances brainstorming, critical thinking, self-directed lifelong learning and motivation in students. Researchers regard PBL as a global learning trend¹. Problem based learning was introduced by Howard Barrows and first implemented by McMaster University medical School in 1969². After its introduction in different institutes especially in medical schools, it becomes famous because of its qualities of reasoning, critical thinking, and self-directed lifelong learning. Yet the attraction of problem-based learning and its uptake in the 1970s and 1980s in Canada, Australia and the United States, and in the late 1980s in the UK, seemed to lie not only in its timely emergence in relation to other world-wide changes in higher education, but also because of new debates about professional education³.

Researchers suggest implementing the strategy of the problem based learning methodology and vice versa⁴. Additionally, many organizations including World Health organization have begun to publicly support PBL-based training. In the 1990s, for example, the World Bank Group set as a condition for financing nursing training in developing countries, that the study programme had to be based on the PBL idea⁵.

In Pakistan in 1996, Ziauddin Medical University has integrated problem-based learning in its curriculum, a strategy used for first time in Pakistan⁶. Similarly, the Aga Khan university which considered a standard university of the state adopted PBL curriculum in 2002⁷. Later on, many medical colleges adopt the strategy and now in various institutes of the country it has been used. In many nursing institutions, the problem based learning strategies are used but still there is no significant research found on this topic in Pakistan.

PBL is presently used in approximately in every medical school worldwide and also in schools of other health disciplines like dentistry, medical technologies, pharmacy, physiotherapy, and nursing. It is also used in schools in cities, suburban counties, and rural communities.

2. Methodology

2.1. Study Design

A non experimental quantitative descriptive study was conducted in district: Peshawar of the Khyber Pukhtoon Khwa province of Pakistan.

2.2. Purpose

Main purpose of this study was to know about the perception of nursing students about PBL in Peshawar, KPK.

2.3. Sampling

Non-randomized convenient sampling was taken. A sample of n=80 was selected from three nursing colleges of KPK in which one was government, one semi government and one private institutes.

2.4. Data Collection

Data was collected from participants after consenting through a self developed and experts modified pilot tested questionnaire having both structured and unstructured questions.

Analysis of the data was the most crucial part of my research study. Cleaning of data was the first step to detect variables that could be missed or would be invalid. All data was double entered in the Statistical Package of Social Sciences (SPSS), and then the entered data sets were checked by data entry experts for consistency of data and missing values. Upon completion of this phase, the entered data was transferred to the SPSS version 20.0 for analysis. Descriptive and inferential analysis was carried out to achieve the purpose of the study. Descriptive analysis was done for all categorical variables by using frequencies (n) and percentages (%). Frequencies were calculated to assess the personal and practical characteristics of the study participants. Prevalence was calculated for the various kinds of contributing factors in relation to perception about PBL. Keeping the study design in mind, discussed earlier, after making contingency (2x2) tables for the categorical variables, the Chi square test was carried out to find out the association between the variables.

3. Results

3.1. Demographic and Descriptive Statistics

S. No	Variables	Frequency (n)	Percentage (%)	
1	Age	Below 25 Years	26	32.5
		25 years & above	54	67.5
2	Gender	Male	41	51.3
		Female	39	48.7
3	Qualification	Undergraduate	42	52.4
		Graduate	25	31.3
		Postgraduate	13	16.3
4	Marital status	Married	38	47.5
		Unmarried	42	52.5
5	Programme	Post RN B.Sc. N	53	66.3
		Generic B.Sc. N	27	33.7
6	Institute Names	INS - KMU	33	41.3
		PGCN	19	23.8
		RCON	28	35.0

Table 1: Demographic statistics

3.2. Descriptive Statistics (Table 01)

The results of descriptive data showed that 51.3% of the participants were male and 48.7% were female. Qualifications of the participants were Undergraduates 52.4%, Graduates 31.3%, and Postgraduates 16.3%. 67.5% of the participants were 25 and above years of age while 32.5% were under 25 years old. Regarding marital status the ratio of married were 47.5% and unmarried were 52.5%. The in-service Post RN B.Sc. N students participation were 66.3% and Generic B.Sc. N students were 33.7%.

The astonishing response to the question of the teaching methodologies used in an institution were "face to face" which boomed to 100%. Most of the students were in favour that PBL improves the problem solving skills and develops the confidence in self directed learning 97.5%, after that 95% were agree that PBL activate and organize prior knowledge, identifies students' weaknesses for improvement, can learn more in active participation, improves self directed learning skills and students' motivation is necessary to make PBL effective. Three times similar responses to multiple questions in favour like 93.8% responded that PBL enhance the ability of the student to speak in front of people, learners becomes active processors of information through PBL, and PBL improves the critical thinking ability.

The same three questions have similar results 91.3% of yes in response that PBL maximizes individual student's participation, enhances IT knowledge, and convert students from passive to active lifelong learners. The next three questions in which students were in favoured marked 85% were; they have taken the introductory session about PBL, they grade their knowledge average and above average regarding PBL and they were also in favour of PBL as teaching learning strategy.

Moreover, students perception that PBL can improve the quality of education were 88.8%, students experienced PBL in their academia 67.5%, and the curriculum should be completely based were only 38.8%, the remaining 61.2% were not in favour of completely PBL based curriculum. The responses to the question about enough resources available to conduct PBL in an institution were 46.3% in favour and the rest 53.7% were not satisfied from the current resources. Most of the students mentioned the additional resources: well equipped hall for conducting PBL, up to date books, digital library, and expertise of teachers as facilitators.

All of the participants enlisted the teaching strategies used in their respective institutions (face to face n=80), and almost majority (n=77) responded to open question of using current teaching methodologies in their respected institutions were lecture method, writing board (Blackboard & Whiteboard), Multimedia, Discussions (Group discussion, tutorials and PBL), and quizzes. More than half of the participants (n=47) define "PBL is acquiring new knowledge through existing knowledge" while one fourth participants (n=19) stated "It is deriving solutions for complex problems", the rest of the students didn't attempt the question. Majority of the students (n=73) mentioned the possible benefits of PBL are; enhancing critical thinking ability, students' motivation, self directed learning ability, develops confidence and improves decision making skills.

On the other hand, inferential statistics were calculated and association of favour of PBL was find out with different variables. There was also association among different other variables.

There were no significant association found among the demographic variables like age, gender, marital status, qualification, and nursing programmes (two years & four years) i.e. $P > 0.05$. Association were found among other variables like, favour of PBL in enhancing critical thinking, decision making, self-directed learning, inducing students' individual participation, maximizing students' involvement, and activate prior knowledge. Other associations were found in PBL can improve quality of education and in PBL students' reflect on their own thinking. Furthermore, there were also an association between in PBL design of course enables the learner to establish a concrete action plan to achieve their learning goals and students' convert from passive to active lifelong learners,

enhancing the confidence of students' to speak in front of people, and the ability to utilize information technology in search of information (Table 02).

S. No	Variable names	Favour of PBL		P-Value
		Yes	No	
01.	Do you think PBL can improve quality of education? * PBL enables the learner to establish a concrete action plan to achieve their learning goals.	66	05	.000
		04	05	
02.	Do you think PBL improve critical thinking ability? * PBL improves the problem solving skills.	74	01	.010
		04	01	
03.	Do you think PBL improve critical thinking ability? * PBL improves the decision making skills.	72	03	.000
		02	03	
04.	Do you think PBL can improve quality of education? * PBL develops the competence in self directed learning	68	03	.002
		06	03	
05.	Do you think PBL can improve quality of education? * PBL improves the decision making skills	68	03	.002
		06	03	
06.	Do you think PBL can improve quality of education? * PBL helps to convert from passive to active life long learner.	67	04	.006
		06	03	
07.	Do you think PBL maximize student's individual participation? * Do you think students can learn more in PBL through active participation?	73	04	.000
		03	04	
08.	Are you in favour of PBL as a learning strategy? * Do you think student motivation is necessary to make PBL session effective?	67	01	.001
		09	03	
09.	Have you ever been experience PBL in your academia * Do you think PBL maximize student's individual participation?	53	01	.002
		20	06	
10.	Are you in favour of PBL as a learning strategy? * In PBL design of the course impose students to actively and critically reflect on your own thinking?	65	03	.013
		09	03	
11.	Are you in favour of PBL as a learning strategy? * PBL develops the confidence in self directed learning.	68	0	.001
		10	02	
12.	Are you in favour of PBL as a learning strategy? * PBL develops the competence in self directed learning.	66	02	.000
		08	04	
13.	Are you in favour of PBL as a learning strategy? * PBL increases ability to manage the time effectively.	62	06	.018
		08	04	
14.	Are you in favour of PBL as a learning strategy? * Learners activate prior knowledge and learn to elaborate and organize their knowledge through PBL.	66	02	.044
		10	02	
15.	Are you in favour of PBL as a learning strategy? * Do you think students can learn more in PBL through active participation?	66	02	.044
		10	02	
16.	Are you in favour of PBL as a learning strategy? * Do you think student motivation is necessary to make PBL session effective?	67	01	.001
		09	03	
17.	Are you in favour of PBL as a learning strategy? * Do you think PBL improve critical thinking ability?	68	0	.000
		07	05	
18.	Are you in favour of PBL as a learning strategy? * Do you think PBL improve self directed learning skills?	68	0	.000
		08	04	
19.	Are you in favour of PBL as a learning strategy? * Do you think PBL maximize student's individual participation?	65	03	.001
		08	04	
20.	Are you in favour of PBL as a learning strategy? * Do you think students must have basic knowledge about PBL?	64	04	.001
		07	05	
21.	Have you ever been experience PBL in your academia * Are you in favour of PBL as a learning strategy?	50	04	.006
		18	08	
22.	Have you ever been experience PBL in your academia * How you will grade your knowledge about PBL?	53	01	.000
		15	11	
23.	Are you satisfied with the current teaching methodologies using in your institution? * PBL develops the confidence in self directed learning.	61	0	.010
		17	02	
24.	Are you satisfied with the current teaching methodologies using in your institution? * PBL develops the competence in self directed learning.	59	02	.010
		15	04	
25.	Are you satisfied with the current teaching methodologies using in your institution? * PBL helps to convert from passive to active life long learner	59	02	.002
		14	05	

26.	Are you satisfied with the current teaching methodologies using in your institution? * PBL increases ability to manage the time effectively.	58 12	03 07	.000
27.	Are you satisfied with the current teaching methodologies using in your institution? * PBL enhances the ability of students to speak in front of people.	59 16	02 03	.049
28.	Are you satisfied with the current teaching methodologies using in your institution? * PBL helps in identifying the areas of weakness for improvement.	60 16	01 03	.013
29.	PBL helps to convert from passive to active life long learner. * PBL enables the learner to establish a concrete action plan to achieve their learning goals.	67 03	06 04	.000
30.	Are you in favour of PBL as a learning strategy? * Do you think PBL maximize student's individual participation?	65 08	03 04	.001
31.	Are you satisfied with the current teaching methodologies using in your institution? * Do you think the current methodology for teaching involves equal individual participation	43 17	18 12	.008
32.	Do you think PBL maximize student's individual participation? * PBL enables the learner to establish a concrete action plan to achieve their learning goals.	66 04	07 03	.011
33.	Are you in favour of PBL as a learning strategy? * Do you think student motivation is necessary to make PBL session effective?	67 09	01 03	.001
34.	Are you in favour of PBL as a learning strategy? * PBL improves the decision making skills.	65 09	03 03	.013
35.	Have you ever been experience PBL in your academia * Have you ever taken introductory session about PBL?	51 17	03 09	.001
36.	Do you think PBL can improve quality of education? * In PBL design of the course impose students to actively and critically reflect on your own thinking?	69 05	02 04	.000
37.	Do you think PBL improve critical thinking ability? * PBL improves the decision making skills.	72 02	03 03	.000
38.	Are you in favour of PBL as a learning strategy? * Do you think students must have basic knowledge about PBL?	64 07	04 05	.000
39.	Learners become active processors of information through PBL. * PBL enhances the ability to find the information using the internet/library.	70 03	05 02	.011

Table 2: Association of PBL with different variables

3.3. Discussion

In today's academic world PBL possess a very important role in students learning and almost every student, teacher, and facilitator is in favour of PBL in academia. This study was the first approach to study the perception of PBL in a developing country like Pakistan in the field of nursing. It shows that everyone in the said profession is in favour of PBL in academia and strongly supports its implementation in the said field.

Various studies on PBL in different countries have shown different findings that support the current study findings. Enormous studies have been made on PBL to measure its outcomes for different variables especially on "enhancing critical thinking of the students" using different measurement tools and scales. Some of these are (Table 3):

Study Evidence	Study Sample	Study Design	Instruments	Key Findings
Joe and Elizabeth ⁸ (1999)	Descriptive study	nursing students n=24	PBL evaluation questionnaire	Promoting critical thinking was the major outcome of PBL.
Celia and Gordon ⁹ (2001)	Descriptive study	novice nurses n=26	PBL assessment questionnaire	The best feature of PBL were self directed learning and recognizing how to apply critical thinking skills.
Morales-Mann and Kaitell ¹⁰ (2001)	Descriptive study	Year 2 students n=56	Open end questions	Students satisfactorily demonstrated the learning outcomes of PBL included critical thinking, self direction, and effective communication.

Cook and Moyle ¹¹ (2002)	Descriptive study	Year 2 nursing students n=100	PBL evaluation questionnaire	PBL promoted critical thinking, problem solving and active participation.
Wang et al. ¹² (2004)	Descriptive study	Year 3 nursing students n=19	PBL evaluation questionnaire	PBL improved the self-directed learning and critical thinking abilities.
Yuan and Qian ¹³ (2003)	Descriptive study	Year 2 nursing students n=29	PBL evaluation questionnaire	PBL enhanced self-directed learning, critical thinking, and cooperative group working.
Tiwari et al. ¹⁴ (2006)	RCT (Randomized control trial)	Year 1 undergraduate nursing students n=79	CCTDI (California critical thinking disposition inventory)	Compared with the lecture students, the PBL students showed significantly greater improvement in critical thinking.
Jones ¹⁵ (2008)	Quasi-experimental, pretest-posttest study with control and treatment groups	Year 2 students in a community college in US n=60	Critical thinking; communication skills; Self-awareness (Sidebar. Bloom's Taxonomy)	PBL help to develop critical thinking; more rigorous design study needed
Yuan et al. ¹⁶ (2008)	Quasi-experimental, two group pretest-posttest design	Year 2 undergraduate students in China (n=46)	CCTST California critical thinking skills test.	Significant difference at post-test
Dehkordi & Heydarnejad ¹⁷ (2008)	Quasi-experimental with a control group, pretest-posttest design	Year 2 undergraduate students in Iran (n=40)	CCTDI (California critical thinking disposition inventory)	PBL group had greater improvement in critical thinking

Table 3

Similarly another students' survey has done on PBL which showed comparatively the similar results like student satisfaction from PBL¹⁸ (n=37): Problem solving* (P = 0.002), Communication* (P = 0.023), Time-management*(P = 0.030). (n=44) Confidence* (0.001), Problem solving* (0.004), Analytical skills* (0.002), Team-working* (0.010)

3.4. Limitation and Recommendations

For effective implementation every effort were made but some of the major limitations were time management, lack of resources both human and materialistic resources, limited number of participants. Also most of the participants were new for this sort of teaching learning methodology. Students observed and mentioned already the resources needed for successful conduction of PBLs like well equipped rooms, interactive class rooms, team works and spirits, internet facilities, digital libraries and up to date books, research journals, conducive environment, expertise, cooperation, and coordination and role change of teachers as facilitators.

It is further recommended that for the purpose of improving the quality of education such types of study may be conducted in other areas of Pakistan in different aspects, cohorts and experimental studies should have made on students to measure the exact benefits for students. I will also recommend extending such type of study to different populations like diploma level nursing students, medical professionals and specifically practical nurses. For awareness purpose orientation programs can be conducted in different educational organizations depending on the availability of resources. Such Exposures can enhance the cognitive, affective, and psychomotor skills of the participants and help them to become independent lifelong learners, self directors, critical thinkers, good decision makers, and improve the quality of education.

3.5. Impact and Sustainability of the Project

After results, discussion, and conclusion it is stated that in some institutes students are already exposed and practicing PBL in their respective institutes and on the other hand, it is quite possible that it can be implement in almost all nursing institutes by keeping its advantages in mind. Moreover, there is also a trend of positive change and implementation of effective strategies and methodologies to raise the standard of education; in this regard it is quite a possibility of implementing PBL integral part in nursing curriculum. PBL should sustain in institutions unless it is benefiting students.

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