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Evaluation of the Correlation Between the Utilization and Quality Indicators of PHC Services (Multivariate Analysis)

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Abstract

Background

Health system quality may be an underappreciated level for influencing utilization of primary care services. It is topical that in conditions of expanding coverage by universal state healthcare program many Georgians still do not consistently utilize primary healthcare services.

The purpose of our research is to evaluate how utilization parameters within the framework of these state program could act to quality improvements and provide more effective primary health care, and are they been in strong associative relationship.

Methods

This study was a prospective study among a representative sample of 300 adults, registries in primary healthcare centers in Tbilisi (capital of Republic of Georgia) area (with a population of 1.114 million). The research sample population was constituted in 2016 using a 3-level random sampling method. The refusal rate among the contacted people was 10.7% and research was completed within 268 participants.

Variable value's sets, such "owning/ using an additional private healthcare insurance package" as well as "age, employments status and gender" was collected by a self-administered, pre-designed, pre-tested anonymous questionnaire and was examined drawing cross-tab, Pearson's correlations, and multivariate logistic regression models. Data were imported into SSPS software. Statistical significance was set at $P<0.05$.

Results

The multivariate analysis of the study reveals that the level of PH service's satisfaction within implemented state health program correlated with frequency of PH service's usage in general.

Private Health Insurance additional Package (PHIaP) was most often used by beneficiaries aged <35 YY (4.5 times more frequently, CI95% 1.82 to 10.94, P = 0.0001) and, beneficiaries aged 36-45YY (3.5 times, CI95% 1.31 to 9.28, P = 0.0011); in addition, employed people were 40 times more likely participated in supplemental healthcare insurance schemes (CI95% 12.47 to 126.86, P <0.0001).

The highest rate of satisfaction with the PH services was found in sub-group of beneficiaries, who have applied for services to PHC once or more per month (3,9130 SD = 0.4706) , the lowest in sub-group, who never have applied for services at all (2,6346 SD = 0.3473).

Vol. 4, No. 01; 2020

ISSN: 2581-3366

Positive perception (> 75%, highest rate 4,1034 SD = 0.2996) of state-funded primary healthcare services matching to their medical needs have had 13.9% of total population; a significantly larger group, including the satisfied group of beneficiaries, noted that their medical needs were not even covered by 2/3.

Level of satisfaction was much lower both in sub-group, who had used the hospital services when a medical need arises (2, 8364 SD = 0.5369) and in the sub-group who had been self-treated or treated by familiar physicians (3, 4167 SD = 0.5764).

Conclusion

Health systems and primary healthcare sub-system, as part of whole, continue to shift their perspectives about the patient experience, seeing it more as a prime indicator of healthcare organizations' overall health. More future research is needed to eager for more information about how patient satisfaction and experience fits into the bigger healthcare picture and improves quality and quantity measures and it even more important for the new universal state healthcare system in Georgia.

Introduction

Expanding coverage of healthcare services has been a global health priority for decades and is a particular focus of the Millennium Development Goals launched in 2000 (Leonard). Most research demonstrate that improved self-reported health following expansion and an association between expansion and certain positive health outcomes (gage, wang, SARA,). A small subset of study findings shows no effects of expansion on certain specific measures within these access-related categories.

Findings on expansion's effect on PH provider capacity is mixed, with studies showing increases, decreases, or no effects on measures like appointment availability or wait times (bitton). Care quality, both technical and interpersonal, is more important than clinic inputs such as equipment and cleanliness. These results suggest that while basic clinic infrastructure is necessary, it is not sufficient for provision of high quality, patient-centered care. There is an urgent need to build an adequate, competent, and kind health workforce to raise facility delivery and promote patient-centered care.

As well poor quality of care may deter utilization of beneficial primary health care services. Improving health service quality may offer an opportunity not only to improve health outcomes for patients, but also to expand coverage of key primary health care services (gagge anna).

Government of Georgia (Republic of Georgia) following the global trends in 2012 has initiated reforms in the health sector named Universal Health Coverage Program with basic outpatient, inpatient and emergency services to all citizens. However, despite years of effort in expanding coverage, many Georgians still do not consistently utilize primary healthcare services. Through this program visits in PHC have increased since 2012 and reached 3.9 visits per capita in 2016, although this number remains lower than the European Union average (NCDC).

Health system quality may be an underappreciated level for influencing utilization of primary care services. On the strength of research and associations identified in them, we have suggested that quality improvements could act synergistically to increase utilization and provide more effective care. A more granular understanding of health system utilization and quality of care is necessary to build effective state program with universal coverage.

Vol. 4, No. 01; 2020

ISSN: 2581-3366

Methods

This study was a prospective study among a representative sample of 300 adults, registries in primary healthcare centers in Tbilisi (capital of Republic of Georgia) area (with a population of 1.114 million). The research sample population was constituted in 2016 using a 3-level random sampling method. In a first step, 20 PHC (with about 2000-5000 beneficiary in each) were randomly selected using a stratification based on geographic distribution. In the next step, 1200 participants were randomly chosen from a complete list of beneficiary within each selected centers. In the final step, each study participant was randomly selected from list by the birthday method and general research population was 300. The refusal rate among the contacted people was 10.7% and research was completed within 268 participants.

Drawing the cross-tabulation tables we have selected covariates that might influence quality of primary health care as well as utilization of these services, which were included independent variable, such as "owning/ using an additional private healthcare insurance package" and dependent variables, such as "age", "employment status" and "gender", and have evaluated what are the associative links between these parameters.

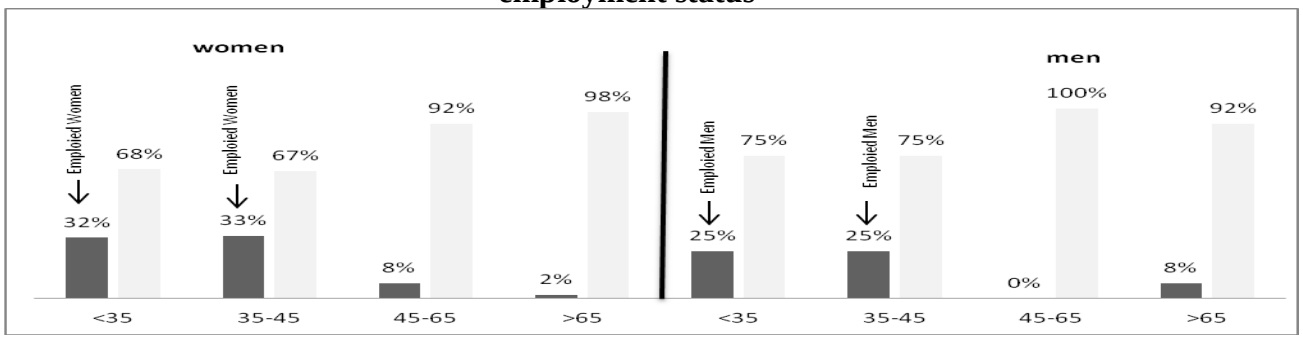
A self-administered, pre-designed, pre-tested anonymous questionnaire (in Georgian language) was distributed after obtaining an informed written consent from each participant. Information was collected on basic socio-demographic (like age, gender and employment status) and other characteristics (like owning or/and using an additional private healthcare insurance package).

Data were entered in Microsoft Excel and analyzed using the SPSS software (version 16.0). Correlations between independent and dependent variables were calculated using Pearson's correlation test (r). Multivariable step-wise linear regression analysis was carried out to find the role of each significant variable in determining the relevant sub-scale scores. Statistical significance was set at $P<0.05$.

Results

Private Health Insurance additional Package (PHIaP) was most often used by employed person aged <45Y without significant sex differences, in particular by 32 % women and by 25% men, on the other hand, in sub-group of population aged >65Y, which are most vulnerable to health problems, there were small, but statistically measurable parameters – for female 2% and for male 8% (see Figure N1).

Figure1. Usage of an additional private insurance package according to age, sex and employment status



Vol. 4, No. 01; 2020

ISSN: 2581-3366

Beneficiaries <35 years old 4.5 times more frequently (CI95% 1.82 to 10.94, P = 0.0001) and, beneficiaries 36-45 years old 3.5 times more likely (CI95% 1.31 to 9.28, P = 0.0011) had used private healthcare insurance policies additionally with services, offered by state healthcare system; in addition, employed people were 40 times more likely participated in supplemental healthcare insurance schemes (CI95% 12.47 to 126.86, P <0.0001).

Accordingly, the positive decision about participate to insurance scheme for reduction of health care financing costs through the private healthcare insurance system was an age-dependent feature (Pearson correlation coefficient r = 0.729) and is strongly associated with employment status (Pearson correlation coefficient r = 0.976).

Contrary to that the level of satisfaction with primary healthcare services was lower in sub-group, who additionally had been used policies of private health insurance (Pearson correlation coefficient r = -0.391, p <0.001), while in the same sub-group the frequency of PHC referral was high (Pearson correlation coefficient r = 0.753, p <0.0001).

The highest rate of satisfaction with the primary healthcare services was found in sub-group of beneficiaries, who have applied for services to PHC once or more per month (3,9130 SD = 0.4706) , the lowest in sub-group, who never have applied for services at all (2,6346 SD = 0.3473) (see Table N1), therefore, we can conclude that satisfaction with quality of healthcare services is positively correlated with their consumption level.

Table N1. The associations between PH service satisfaction level and frequency of PHC referral

	Median (Med)	N	SD	Total %
Have not applied PHC	2.6346	52	.3473	25.7%
Have applied PHC for 1-6-times/Y	2.9787	47	.1910	23.3%
Have applied PHC for 6-11 times/Y	3.1404	57	.3663	28.2%
Have applied PHC for >12times/Y	3.9130	46	.4706	22.8%
Summary	3.1666	202	.3438	100%

The level of satisfaction with the primary healthcare services also depends on the duration of continuous registration in the PHC, and the study shows that the patients' satisfaction with these services was unequivocally increased if he/she had not replaced the PH service provider for a certain length of time (highest score 3.5275 SD = 0.4031). It is noteworthy that dissatisfied patients had left the PHC mostly less than for 12 months.

There is an association between satisfaction with primary healthcare services and beneficiaries' perceptions of coverage their main medical needs. Only in a small sub-group of beneficiaries was revealed positive perception of matching state-funded primary healthcare services to their medical needs (> 75%, highest rate 4,1034 SD = 0.2996, 13.9% of total population); A

Vol. 4, No. 01; 2020

ISSN: 2581-3366

significantly larger group, including the satisfied sub-group, noted that their medical needs were not even covered by 2/3, indicating the inflexibility of providing PH services (see Table N2).

Table N2. The associations between level of satisfaction with PH services and perceptions of medical needs coverage (MDC) by state healthcare program

	Median	N	SD	Total %
MDC <20%	2.2414	29	.3210	14.4%
MDC - 20-50%%	2.9796	100	.1833	49.5%
MDC - 50-75%	3.4000	45	.2844	22.3%
MDC >75%	4.1034	28	.2996	13.9%
Total	3.1811	202	.2721	100%

The study found that the level of satisfaction does not change significantly with respect to the rate of PH services usage if we measured it before and after the program implementation. The satisfaction parameter does not reach a score of 4 both in whole population and in sub-group of beneficiaries, who mostly often were used primary healthcare services provided by state program (indicator 3.2982 SD = 0.5464) and in the beneficiaries, who had used these services intensively before the program was launched (Indicator 3.0149 SD = 0.5050).

Level of PH services awareness was high in satisfied patients (3, 7778 SD = 0.3951), that can indicates a high level of service quality itself, but the main problem is that this sub-group was very small (22%).

Level of satisfaction was much lower both in sub-group, who had used the hospital services when a medical need arises (2, 8364 SD = 0.5369) and in the sub-group who had been self-treated or treated by familiar physicians (3, 4167 SD = 0.5764).

Table N3. Level of satisfaction with PH services in attitude to level of awareness about PH services (addressed primary medical services) suggested by state healthcare program

	Median	N	SD	Total %
Addressed to PHC	3,7778	45	0,3951	22%
Addressed to Hospital	2,8364	54	0,5369	27%
Addressed to Specialists	3,4167	36	0,5764	18%
Have not addressed	2,8209	67	0,1769	33%
Total	3,2130	202	0,4213	100%

Some satisfied patients had known that they had not undergone unnecessary medical intervention (4, 4167 SD = 0.4097), but most satisfied patients did not sure if they had been undergone unnecessary medical intervention.

Research has found that the information, provided by primary healthcare doctors during PHC visits, generally assessed by beneficiaries as "clear and comprehensive" (3.2412 SD = 0.5007), in whole population, including unsatisfied patients. This is another indicator of the perception of the PH service's quality as positive.

Vol. 4, No. 01; 2020

ISSN: 2581-3366

The multivariate analysis of the study reveals that the level of PH service's satisfaction within implemented state health program correlated with frequency of PH service's usage in general (utilization vs quality - p <.001) and the positive values of utilization/quality mostly showing growth tendencies in terms of increased accessibility and awareness of these services and depends on beneficiaries incomes most of all as well as availability of insurance scheme financial support.

Discussion

Many developing countries have private health insurance markets which are serving their middle class; and may also afford some degree of financial protection for the poor. Many developed countries use supplementary private insurance to fill gaps in their publicly funded systems and pay for increasing health services demand (who).

In Georgia individual and family health insurance rates can be based on the age of the youngest person on the policy. Some people with an age difference of several years may find they save money by applying for the private insurance plan rather than without, by applying for the universal state healthcare program.

As developing country policy makers consider whether they will allow private insurance to emerge or, if it already exists, how they can better manage the market, a few lessons are important from the experiences of developed countries.

Private health insurance plays a large and increasing role around the world. International experiences show that private health insurance is significant in countries with widely different income levels and health system structures. Policy makers need to confront the role that private health insurance will play in their health systems and regulate the sector appropriately so that it serves public goals of universal coverage and equity.

The United States is the only rich country to rely on voluntary private insurance to provide coverage to most of its people. Over 70% of the population obtains health coverage through private insurers, with almost 64% of this through employment-based insurance plans (who).

The main purpose of Universal Health Coverage Program reform in Georgia was to ensure that health care services will be accessible, appropriate and high quality. Our findings align with those of other researchers, who found that the participation into private insurance scheme additionally with state healthcare program, conduce to reduction of health care costs through the primary healthcare services consumption, which itself depends on age and employment status of beneficiaries.

Improving the patient experience can seem like a moving target influenced by a variety of factors, such as level of awareness about PH services and the actual consumption of these services, perceptions of coverage beneficiaries' main medical needs and duration of continuous registration in the PHC.

Vol. 4, No. 01; 2020

ISSN: 2581-3366

Despite the fact that healthcare organizations have been talking about and focusing on patient experience and patient satisfaction for a long time, universally accepted definitions don't exist. Patient satisfaction survey vendors use contrasting language, leading to varying patient interpretations. The industry also lacks conclusive research that proves the connections between patient satisfaction and outcomes. And with so many resources focused on improving patient satisfaction, it's no surprise healthcare leaders want to understand the connection.

Expanding coverage of primary healthcare services was a national health priority; however, many Georgians did not utilize these services. One reason might be that the population had avoided low quality health facilities. We examined how the quality of primary health care service delivery were associated with community utilization of primary health care services in Georgia.

When it comes to patient satisfaction and outcomes, we have advised health systems use patient satisfaction as a balance measure. We have also determined that the connection between the patient experience and quality of care, demonstrating why patient experience is a prime indicator of a system's overall health and in particular primary healthcare system.

Conclusion

Health systems and primary healthcare sub-system, as part of whole, continue to shift their perspectives about the patient experience, seeing it more as a prime indicator of healthcare organizations' overall health. More future research is needed to eager for more information about how patient satisfaction and experience fits into the bigger healthcare picture and improves quality and quantity measures and it even more important for the new universal state healthcare system in Georgia.

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