

Quality assurance for increasing growth monitoring and promotion (GMP) performance

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Abstract

Background Measuring body weight of under-five children is one of the Family Nutritional Improvement Program or *Usaha Perbaikan Gizi Keluarga* (UPGK) activities which was integrated in Integrated Health Post (*Posyandu*) activities. Growth monitoring and promotion (GMP) has been used as the main component of the health and nutritional program in several developing countries. Unfortunately, this activity did not run as expected. This study aimed to understand how quality assurance/total quality management (QA/TQM) influence the performance of the GMP.

Methods This 6 month operational research included 76 *Posyandus* in four subdistricts of Jogjakarta Province. The results of the *Posyandus*'s GMP score performance were used as a basis to improve the performance for the next consecutive months with QA system. Data were transformed as a score index. Student's t-test was used to analyze the data.

Results The quality assurance could increase the performance of GMP, which was done in *Posyandus* intervention group for 3 consecutive months. The baseline scores for both groups were 0.47 ± 0.12 vs 0.42 ± 0.17 ($P=0.302$), at the second month monitoring: 0.58 ± 0.07 vs 0.42 ± 0.16 , for the intervention group ($P<0.001$). The mothers' index (percentage of the children under five attendance and mothers who brought KMS at weighing session), however, did not significantly change.

Conclusion Total quality management increased the general performance of *Posyandus*, but the program could not influence the mothers' index. [Paediatr Indones 2007;47:95-99].

Keywords: growth monitoring and promotion, quality assurance, quasi-experimental

Growth Monitoring Program has currently been developed as a growth monitoring and promotion activity (GMP). Growth monitoring means weighing children and drawing a body weight graphic. Growth promotion includes weighing process, drawing a body weight graphic, assessing body weight, and providing counseling as well as motivation to improve growth. The objective of the program is to improve children's nutritional state through integrated activities. In Indonesia, this program is well-known as weighing post in *Posyandus*.¹ Considering that weighing post activity is one of *Posyandus*'s programs and the implementation is still far from what has been expected as included in the objective of GMP, improvement of weighing program for children under 5 years in order to achieve better life is needed.¹ GMP has an important role in improving society's awareness upon malnutrition and organizing an action to cope with it. Many studies on GMP performance found disappointing results and its potential had frequently not been realized. Therefore, it is important to evaluate the quality of GMP and find a way to improve its performance.²

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Strategies to support the program include disseminating weighing indicators as an entrance for multi-sectoral and multi-dimensional interventions, developing the standard procedure of service and training of weighing program and nutritional promotion, and introducing *Keluarga Peduli Nutrisi* program.³ The government set up the revitalization program of *Posyandus* all over Indonesia in 1999; however, the function and performance *Posyandus* have not been optimal. A study conducted in 8 subdistricts showed there were 30-59% active *Posyandus*, 27-39% *Posyandus* with inconsistent performance, and 14-31% *Posyandus* with absence of activities.⁴ This was consistent with the data from *Lembaga Pengembangan Kesehatan dan Gizi Masyarakat*,⁵ which found 0% active *Posyandus*, 27% adequately active *Posyandus*, and 73% inactive *Posyandus*. Individual counseling at *Posyandus* was found to be 60-65% and public participation was 20-65%.

Since 1990, QA Project has developed an instrument and method based on quality control principles for industrial use and to be applied in developing countries' health system frame.⁶ WHO analyzes various approaches and develops efforts to improve the health service. One of the WHO's programs is the issue of Quality Assurance in 1983 and 1985 at the primary health service. It introduced and carried out the quality assurance as well as accredited the programs in some South American countries and Caribbean during 1990-1995, Brazil, Zambia (WHO and Danida) in 1993, Jordan and Nigeria (WHO and USAID) since 1994, Indonesia and Iran in 1997, Morocco in 1999, Malaysia and Thailand.⁷

This study aimed to understand how the quality assurance/total quality management (QA/TQM) influences the performance of the GMP based on the percentage of the attendance of children under five, mothers who bring KMS at weighing session, children under five weighing, KMS which is noted, KMS which is drawn, and mothers who get counseling and reward.

Methods

We conducted a study at *Posyandus* in 4 Public Health Centers (*Puskesmas*) in Jogjakarta, which included Tegalrejo and Godean *Puskesmas* as the intervention

groups and Kotagede and Kasihan *Puskesmas* as the control groups. The four *Puskesmas* were chosen because they were developed by Child Health Department of Medical Faculty of Gadjah Mada University for field program of professional education. No randomization was done to assign to the intervention and control groups. Sample collection for monthly monitoring at the four *Puskesmas* was performed randomly by using Population Proportion Random Sampling, and 20 *Posyandus* were selected. Hence, 40 *Posyandus* were needed in the study for both intervention and control groups.

The study was a community trial evaluative research with quasi-experimental method in the operational research frame. Questionnaires were used to obtain the monitoring and growth promotion data.

The inclusion criteria were active or adequately active *Posyandus*. *Posyandus* were considered adequately active when the performance was $\leq 60\%$ and were active when the performance was $> 60\%$. We excluded from the study *Posyandu* which refused to participate in the study.

The monitoring results were used as feedback for the cadres during the meeting held in the subdistricts. The problems found in the monitoring results were then analyzed by the cadres (*Plan*). They subsequently set up plans to solve the problems (*Do*) of the previous month in the GMP of the coming month (*Check*). With the same questionnaires, GMP at the *Posyandus* was monitored monthly (*Act*).

The study used hypothetical trial for average 2 populations with independent variables of quality assurance which were based on GMP scores. GMP scores comprised percentage of children's attendance, percentage of mothers bringing KMS [mother's index], percentage of weighed children, percentage of KMS with fully completed identity, percentage of KMS with fully completed monthly weighing columns, percentage of KMS with complete date of immunization and growth graphic of the previous month, percentage of marked KMS, percentage of KMS with graphic [monitoring index], percentage of mothers receiving counseling and percentage of mothers receiving compliment [promotion index].

Student's t-test was used to compare average scores of GMP of both groups. Confidence intervals were supplied where appropriate. The level of significance was $P < 0.05$.

Results

Of 162 *Posyandus* in the four health centers in Jogjakarta, 159 were selected. Seventy five of 159 *Posyandus* were selected randomly for monthly monitor for 3 months.

Covariate analysis was performed to determine the association of independent variables and *Posyandus* GMP. All characteristics, including the ones with and without significant difference since the beginning of the study, did not significantly affect the presentation of GMP.

A statistically significant difference between intervention and control groups was identified ($P < 0.001$). The changes of scores of both mothers' and cadres' role were presented in **Table 3** to **Table 5**.

The item scores of mothers' index did not significantly change during the 3 months of monitor-

ing performed in both intervention and control groups. The item scores of monitoring index in the intervention groups were found to increase, with a significant difference between both groups ($P < 0.001$). There was an increased promotion index of intervention groups by 0.44 and control groups by 0.13 ($P < 0.001$).

Discussion

This study used a quasi-experimental method without randomization, which could lead to selection bias and thus resulting in unequal characteristics in both groups. Covariate analysis performed on all characteristics found in both groups showed neither characteristic with significant difference nor the ones without significant difference affected the scores of GMP.

Table 1. Basic characteristics of intervention and control *Posyandus*

No.	Variable	Intervention n: 38 %	Control n: 37 %
1.	Meeting of Puskesmas cadres	76	87
2.	Puskesmas visit 66	68	
3.	Registration desk 95	62	
4.	Register book	92	65
5.	Weighing	100	100
6.	Possessing scales 100	100	
7.	KMS brought by mothers	87	89
8.	Giving supplement food	100	97
9.	Counseling	13	8
10.	Number of cadres $5.21 \pm 3.5^*$	$6.97 \pm 2.91^*$	
11.	a. <i>Posyandus</i> with basic education cadres	$0.95 \pm 0.9^*$	$1.7 \pm 1.02^*$
	b. <i>Posyandus</i> with advanced education cadres	$1.74 \pm 0.89^*$	$1.3 \pm 1.02^*$
12.	<i>Posyandus</i> with previously trained cadres	$1.03 \pm 0.75^*$	$1.14 \pm 0.98^*$

*Mean \pm SD

Table 2. Scores of all *Posyandus* during 1st - 3rd month monitoring

No.	Variable	Intervention n average \pm SD		Control n average \pm SD		P
1.	Presentation of GMP in 1 st month	20	0.47 ± 0.12	20	0.42 ± 0.17	0.302
2.	Presentation of GMP in 2 nd month	20	0.58 ± 0.07	20	0.42 ± 0.16	<0.001
3.	Presentation of GMP in 3 rd month	20	0.63 ± 0.18	20	0.45 ± 0.17	<0.001

Table 3. Scores of item 1 and 2 *Posyandus* (index of mothers during 1st - 3rd month monitoring)

No.	Item	Intervention n average \pm SD		Control n average \pm SD		P
1.	Index of mothers in 1 st month	20	0.58 ± 0.22	20	0.57 ± 0.28	0.888
2.	Index of mothers in 2 nd month	20	0.61 ± 0.19	20	0.61 ± 0.25	0.992
3.	Index of mothers in 3 rd month	20	0.60 ± 0.18	20	0.58 ± 0.23	0.740

Table 4. Scores of item 3-9 *Posyandus* (monitoring index by cadres) during 1st-3rd month monitoring

No.	Item	Intervention		Control		P
		n	average±SD	n	average±SD	
1.	Monitoring index in 1 st month	20	0.55±0.14	20	0.48±0.21	0.224
2.	Monitoring index in 2 nd month	20	0.69±0.08	20	0.47±0.19	<0.001
3.	Monitoring index in 3 rd month	20	0.69±0.20	20	0.51±0.20	0.007

Table 5. Scores of item 10 -11 *Posyandus* (promotion index by cadres) during 1st-3rd month monitoring

No.	Item	Intervention		Control		P
		n	average±SD	n	average±SD	
1.	Promotion index in 1 st month	20	0.07±0.15	20	0.06±0.16	0.891
2.	Promotion index in 2 nd month	20	0.19±0.30	20	0.04±0.12	0.052
3.	Promotion index in 3 rd month	20	0.44±0.27	20	0.13±0.20	<0.001

Monitoring during the first month exhibited average index of *Posyandus* GMP scores was not significantly different between the intervention and control groups. In the following two months, the results of monitoring showed an increase of *Posyandus* GMP scores in the intervention groups. The *Posyandus* GMP scores of the control groups, on the other hand, tended to be stable. Thus, significant difference *Posyandus* GMP scores of both groups were obtained in two month and three month-monitoring (Table 2). It shows that the implementation of quality assurance by applying *Plan-Do-Check-Act* in the *Posyandus* intervention groups could improve the GMP scores. Some studies on quality assurance in medical sector reveal similar results. A study by Wahyuningsih⁸ at the Klaten Islamic Hospital found that quality assurance increased the function of hospital supervise, meanwhile Widodo⁹ proved that there was a correlation between quality assurance and improvement of medical service quality.

In the concept of Growth Monitoring and Promotion, *Posyandus* does not carry out weighing only, but also records the results in growth charts and evaluates growth as well as provides counseling and motivation in order to improve growth.¹ Our data showed low promotion index results in both groups although there was a trend of increased scores in the intervention groups when compared to the control groups. Skwiz² pointed out the reasons why cadres did not do their jobs appropriately. The reasons were it was hard to do and mostly dealing with administrative works. Thus, the function of *Posyandus* in general has not been consistent with the implementation of GMP.

We conclude that quality assurance could improve *Posyandus* GMP scores. The index of GMP

scores included index of mothers, monitoring and promotion index. The activities influenced by the index of mothers were not intervened. It was due to the fact that the knowledge of mothers about the monitoring and promotion concept was lower than that of the cadres and public figures.¹⁰ The intervention was therefore centered on the cadres to test the quality assurance with the purpose of improving the growth monitoring and promotion. The study also exhibited unchanged scores of mother's index. Statistically, there was no significant difference between the two groups.

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