Remission of Symptoms Among Schizophrenia Patients Receiving Assertive Community Treatment (ACT) in Malaysia: One Year Follow-Up

(Penyembuhan Gejala dalam Kalangan Pesakit Skizofrenia yang Menerima
Rawatan Komuniti Asertif di Malaysia: Susulan Satu Tahun)

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ABSTRACT

Assertive community treatment (ACT) is one of the most important elements of mental health care reform in Malaysia. Many studies worldwide have reliably found that ACT has positive impact on several outcome domains such as reduced hospitalization rate, improvement of symptoms and quality of life. This study aimed to assess the outcome of ACT in the aspect of symptom remission and its influencing factors among patients with schizophrenia in the urban city of Kuala Lumpur. A cross sectional study was conducted on 155 patients with schizophrenia who received ACT in Hospital Kuala Lumpur (HKL). The selection was made by simple random sampling. The abbreviated Brief Psychiatric Rating Scale (BPRS) was used to determine the status of symptom remission. The socio demographic and relevant clinical data were also assessed. A total of 76% (118) was noted to be in remission. According to logistic regression, the strongest predictor of patients receiving ACT with symptom remission was having good social support (p<0.001) and with higher educational level (p=0.024). The study revealed the effectiveness of ACT in terms of high prevalence of patients with symptom remission. This was despite the model of ACT being studied not fulfilling all fidelity measurements of the standard version of the service. The finding would hopefully act as a propeller for further development in this service area. However, the study needs to be replicated through studies with better designs and involving more psychiatric centers.

Keywords: Assertive community treatment (ACT); brief psychiatric rating scale (BPRS); community psychiatric service; schizophrenia; symptom remission

ABSTRAK

Perawatan komuniti asertif (ACT) merupakan satu perubahan penting dalam perkembangan perkhidmatan kesihatan mental di Malaysia. Banyak kajian berkenaan PKA yang dijalankan di seluruh dunia telah memberikan impak positif daripada segi pengurangan kadar kemasukan hospital, penyembuhan gejala penyakit dan kualiti kehidupan. Kajian ini bertujuan untuk menilai PKA daripada segi penyembuhan gejala penyakit dan faktor-faktor yang mempengaruhinya dalam kalangan pesakit Skizofrenia di bandaraya Kuala Lumpur. Satu kajian hirisan lintang telah dijalankan terhadap 155 pesakit skizofrenia yang menerima rawatan PKA di Hospital Kuala Lumpur (HKL) yang dipilih melalui persampelan secara rawak. Ringkasan Skala Penilaian Psikiatri Ringkas (BPRS) telah digunakan bagi menilai tahap penyembuhan gejala penyakit. Pesakit juga telah menjawab soal-selidik berkenaan demografi dan faktor klinikal yang relevan. Sebanyak 76% (118) didapati sembuh daripada gejala penyakit. Berdasarkan Regresi Logistik, faktor utama yang menyumbang kepada penyembuhan gejala penyakit dalam kalangan pesakit yang menerima PKA ialah sokongan sosial (p<0.001) dan tahap pendidikan yang lebih baik (p=0.024). Kajian ini menjelaskan keberkesanan PKA daripada segi tahap prevalen yang tinggi untuk pesakit sembuh daripada gejala penyakit walaupun model PKA yang dilaksanakan ini tidak menepati piawaian penilaian perkhidmatan seperti yang ditetapkan. Adalah diharapkan keputusan kajian ini mampu memberikan perubahan dalam kemajuan perkhidmatan ini. Walau bagaimanapun, kajian ini memerlukan pengulangan dengan kaedah kajian yang lebih baik dan melibatkan lebih banyak pusat psikiatri.

Kata kunci: Perawatan komuniti asertif (PKA); perkhidmatan psikiatri komuniti; penyembuhan gejala penyakit; skala penilaian psikiatri ringkas (BPRS); skizofrenia

INTRODUCTION

All this while, the primary focus on schizophrenia was on the reduction of clinical symptoms and their direct consequences, including discharge from long term care and on relapse prevention. This focus clearly does not address the majority of the problems experienced by people with schizophrenia and symptomatic reduction is now viewed as only one of several meaningful treatment goals. Thus, the presence of clinical remission is operationally defined in terms of symptom severity and a significance absence of symptoms is required in order to substantiate this state of remission. Therefore, many

studies had used symptoms remission as an outcome measurement (Andreasen et al. 2005).

Furthermore, investigations that have focused only on the severity criteria have lead to a conclusion that meeting the remission criteria over 6 months predicts a better functional outcome than simply meeting severity component at a single point of time (Christopher et al. 2009).

A cohort study of outpatients with schizophrenia known as European Schizophrenia outpatient health outcomes study involving 6516 patients that were analyzed for remission showed that 64.6% achieved remission during the 3 year-follow up period (Haro et al. 2006). It was also found that among the factors significantly associated with achieving remission were female, having a good level of social functioning at study entry and a shorter duration of illness. They also stated that treatment with Olanzapine was associated with a higher frequency of remission compared with other antipsychotic agents. However, this should be interpreted conservatively because of the observational, non randomized study design (Haro et al. 2006). Meanwhile in a recent study, Li et al. (2010) reported that the rate of symptomatic resolution among Chinese patients with schizophrenia is 36.7%. It was shown that they had significantly higher level of education and lower scores for positive symptoms, negative symptoms and general psychopathology on the positive and negative Symptoms Scale, lower score on the Udvalg for Kliniske Undersogelser side effects rating scale and Simpsons Angus scale but a higher scores on the global assessment of functioning and subjective well-being under Neuroleptics scale, compared with patients who did not meet the resolution criteria (Li et al. 2010).

The subjective view of service providers towards community psychiatric services in many of the centers is rather favorable, despite the lack of local scientific evidence on the effectiveness. Generally, it is perceived as beneficial at least to the most complex and chronic patients like schizophrenia. The study of symptoms remission as an outcome measurement among schizophrenia patients receiving community mental health service is still minimal until present date. In Malaysia, it is still largely unexplored although generally observed to be useful in further enhancing the management of patients with severe mental illness. Thus, it is timely to conduct a local evaluative research to note whether the community psychiatric service in particular ACT helps in achieving the goal treatment and to identify on the factors associated with the outcomes of schizophrenic patients receiving community psychiatric service in a defined period of time.

There is a need to adopt an outcome focus in these patients with severe mental illness. Currently, there is no local published data available in terms of CPS impact on clinical outcomes and factors influencing the outcomes of patients with severe mental illness receiving community mental health team services. Therefore, this study aimed to determine the ACT impact on symptoms remission and also factors that may influence the remission of symptoms among patients with Schizophrenia, which will have significant implications on clinical rehabilitation of these patients in the community. Hence to ensure delivery of comprehensive mental health services provided in a competent and effective manner using the identifiable predictors of outcomes as guides.

METHODS

STUDY DESIGN, SETTING AND SUBJECTS

A cross sectional study was conducted among patients with schizophrenia who had received ACT for at least one year in Hospital Kuala Lumpur (HKL). The selection was made by simple random sampling from the patient's list of community psychiatry service (CPS). This hospital is the largest hospital in Malaysia, located in the centre of metropolitan city of Kuala Lumpur and has a unit called community psychiatry service (CPS) unit which offers community psychiatric services within a catchment area of 30 km radius from the hospital. The catchment area is further subdivided into four zones namely zone A, B, C and D, each comprising a population of approximately 300000. The study was done within a 3-month period from February to May 2010.

The ACT team of HKL is a multidisciplinary team which consists of psychiatrists, medical officers, medical assistants, staff nurses, counselors, occupational therapists and medical social workers. The team works within office hours from 8 am to 5 pm, typically starting their work with daily multidisciplinary team round to discuss the management and progress of cases receiving active interventions in the community. Patients are managed primarily by 11 case managers who are trained psychiatric nurses and medical assistants, with a ratio of 1 case-manager for approximately 40 patients (Malaysia's Country Report 2008). This can be considered as a deviation to the standard ACT criteria suggested by McGrew et al. (1995) where the standard case load ratio in most western countries is 1:10 (McGrew et al. 1995). Another important deviation of note is possibly the less frequent home visits as compared to that in the western countries as a result of the high workload. These deviations are suspected to be a common occurrence in the Malaysian service settings as lack of human resource is a common problem in the country.

Patients enter the service mainly through referrals by their attending doctors and are typically the ones with high risk of relapse such as having poor insight towards illness leading to poor compliance towards medication, having poor support from the caregivers or having many unmet needs. Generally, those with more illness severity will be managed by the community team. The team treats an average of 500 patients per month. The services are individualized and the intensity will depend on the needs of each patient based on the severity of the psychiatric symptoms and functional capacity especially of self-care and social support (Malaysia's Country Report 2008).

The patients were interviewed during home visits. The inclusion criteria were: having diagnosis of schizophrenia based on DSM-IV (TR) by consultant psychiatrists; having received ACT for at least one year and age between 18 and 60 years.

STUDY INSTRUMENTS AND PROCEDURES

The socio demographic and clinical data were obtained from the patients' case notes and via clinical interviews. This was specifically designed by the CPS team for assessing the socio demographic and relevant clinical information. It included assessment on the patients' support system namely family and social support. The social support was measured based on three items: Relationship with neighbor; their acceptance and patient's involvement in the social activity. This assessment was already incorporated in the entry assessment of all patients receiving ACT since the beginning of this service at this hospital. Although the items are not validated, it is taken from questionnaires used in the studies conducted within this area involving community psychiatry services locally.

In this study, the abbreviated brief psychiatric rating scale (BPRS) was administered in patients with a diagnosis of schizophrenia to determine the status of symptomatic remission. This is in accordance with the remission in Schizophrenia working group (Andreasen et al. 2005) whereby is defined as simultaneous attainment of a score of 3 or less for the items on 3 dimension of psychopathology (Psychoticism (items no 8, 11, 15, 120); disorganization (items no 4, 7) and negative symptoms (item no 16) for a minimum duration of 6 months. Patients who met the criteria at this one point assessment and who did not show a relapse of any symptoms as evidence by no psychiatric admission or visit to the emergency clinic in the last 6 months were considered to have achieved symptoms remission. The authors as the interviewer were trained by a senior psychiatrist who had good experience using it in research. The study was approved by the Ethics Committee of Universiti Kebangsaan Malaysia and Ministry of Health.

STATISTICAL ANALYSES

The data were entered into SPSS version 15. For statistical analysis, the independent variables were divided into categorical data and this division was also supported by previous research. The symptom remission was compared between socio demographic and clinical groups using the Chi-square. After bivariate analysis, independent predictive factors were determined using logistic regression. Significance level was set at $p<0.05$.

RESULTS

SOCIO-DEMOGRAPHIC AND CLINICAL PROFILES

The socio demographic and clinical characteristics of the subjects are shown in Tables 1 and 2. The respondents were predominantly young adult, male, Malay, never married, unemployed and had received education of up to secondary school level with a median monthly total family income of RM1,000. Half had duration of illness of 10 years or more. Most had received ACT for 5 years or more. Most received combination of medications and were rated by their case managers as compliant to medication. Most did not take illicit drug or substance. As shown in Table 3, 76% (118) respondents were noted to be in remission with median (IQR) BPRS score of 21 (19-25).

FACTORS INFLUENCING SYMPTOMS REMISSION

Association between symptoms remission with socio demographic and clinical variables are shown in Tables 4 and 5, respectively. From Table 4, respondents with age less than 35 years old were more likely to have symptoms remission than those in older age group ($p=0.012$). Other socio demographic factors that were associated with symptoms remission were educational status and social support. In other words, higher educational status was significantly associated with symptoms remission ($p=0.004$ or 4.5 CI 1.7-12.1) and having good social support was more likely to have remission of symptoms ($p<0.001$ or 5.4 CI 2.4-12.5).

As shown in Table 5, shorter illness duration was associated with symptoms remission ($p=0.002$). No association was found between types of anti-psychotics and symptoms remission. Similarly, there was no association between duration of CPS, medication compliance and substance involvement with remission of symptoms.

Symptoms remission was regressed on the significant variables from socio demographic and clinical data. Table 6 represents significant factors influencing symptoms remission. According to this model, the highest influence of symptoms remission was social support, followed by education. It means, those with good social support ($p<0.001$ or 4.8 CI 1.9-11.6) and higher education ($p=0.024$ or 3.6 CI 1.2-11.6) were more likely to have symptoms remission. This model only explains 25% of the variance on symptoms remission (Nagelkerke R square = 0.252).

DISCUSSION

Adequate control of symptoms in schizophrenia is an important feature to improve the illness outcome. Among the many benefits of adequate symptom control is better quality of life among the carers (Zamzam et al. 2011). This present study revealed that 76% ($n=118$) of the studied patients were having remission of symptoms. This finding concurs with that from a previous research done using similar criteria among insanity acquitters in Hospital Bahagia Ulu Kinta whereby 75% among patients with diagnosis schizophrenia being in remission (Chan et al. 2010). However, this result was relatively higher when compared with those from previous studies on remission in Schizophrenia in which reported rates of remission ranged from 3-70% (Lisa & Dilip 2004). This diversity may be

TABLE 1. Socio demographic characteristics of respondents (*n*=155)

Socio demographic	Median (IQR)	N	%
Age	36 (29-44)		
Age Group			
Below 20		1	0.6
20-29		40	25.8
30-39		59	38.1
40-49		34	21.9
Above 50		21	13.5
Gender			
Male		112	72.3
Female		43	27.7
Ethnic			
Malay		109	70.3
Chinese		26	16.8
Indian		17	11
Others		3	1.9
Marital status			
Married		24	15.5
Widowed		4	2.6
Divorced		14	9
Separated		2	1.3
Never married		111	71.6
Education Level			
Tertiary		19	12.3
Secondary		117	75.5
Primary		15	9.7
No formal Education		4	2.6
Employment Status			
Presently employed		39	19.7
Presently unemployed		103	75.5
Housewives		13	2.6
Total family income (RM)	Median (IQR) 1000 (600-1500)		
Family support			
Yes		145	93.5
Do not know		6	3.9
Seldom		4	2.6
Social support			
Good		122	78.7
Poor		33	21.3

due to the different definition of remission being used in many studies in assessing remission. In several instances, the criteria used to define remission were questionable with no standardized rating scale being used. A majority of the studies include minimal cognitive impairment and functional remission in their definition of 'remission' explaining the lower figures. The figure in this present study was only on resolution of symptoms. A study done among Chinese patients in Taiwan using similar criteria by Andreasen et al. (2005), showed 37% from a total of 90 patients met the symptomatic resolution criteria (Li et al. 2010).

There are several possibilities explaining the positive results on symptoms remission in this study population.

To begin with, the respondent in this study only comprised of patients who were relatively quite stable and had been managed by the ACT team for a longer duration. However, looking at the positive outcome especially on the reduction of admission in the one year after entry to ACT programme, it is most probable that higher prevalence of symptoms remission in this study may have been a reflection of ACT efforts in providing continuous care to this group of patients with complex need.

Another possible factor explaining this finding is institution and monitoring of the main method of treatment; the regular depot injection; which is thought to be not difficult to be done in the context of ACT programme even though the patients may have a

TABLE 2. Clinical characteristic of respondents (*n*=155)

Clinical variables	Median (IQR)	Minimum	Maximum	*n*	%
Illness duration (years)	10 (6-18)	1.5	40		
Shorter (< 10)				80	51.6
Longer (≥ 10)				75	48.4
Duration CPS (years)	3 (2-5)	1	9		
Longer (≥5)				96	61.9
Shorter (< 5)				59	38.1
Antipsychotics					
Conventional Oral				18	11.6
Conventional Depot				13	8.4
Atypical Oral				30	19.4
Combination				94	60.6
Medication compliance					
Yes				129	83.2
No				26	16.8
Substance involvement					
Yes				60	38.7
No				95	61.3

TABLE 3. Characteristics of clinical outcomes

Outcome variables	Median (IQR)	*n*	%
Symptoms remission (BPRS)		118	76.1
Yes		37	23.9
No			
Illness severity (BPRS)			
Total score	21 (19-25)		
Symptoms domain			
Thought disorder	5 (4-8)		
Anergia	5 (4-6)		
Affect	5 (5-6)		
Disorganization	4 (3-4)		
Hospitalization rates (adm/patient/year)			
Less (<3)		140	90.3
More (≥3)		15	9.7
Level of functioning (PSP)			
Total PSP score	66 (57-76)		
Higher (≥61)		115	74.2
Lower (<61)		40	25.8
Quality of life (WHOQOL-BREF) *	Transformed Score 0-100 Median(IQR)		
Physical	56 (50-69)		
Psychological	56 (50-69)		
Social	44 (25-56)		
Environment	56 (50-69)		

history of noncompliance with medications and clinical appointments at entry. Other factors which may explain the high symptoms remission rate is the attendance of some patients to a day programme which also served as compliance monitoring measure and the closer relationship generally noted between the patients and the treating team members.

Although it may not be solely accredited to the community psychiatric care given, it is probable that the likelihood of sustained remission of schizophrenia would increase significantly with better overall treatments including community psychiatry care and psychosocial rehabilitation. However, this finding need to be supported by other evidences pertaining to other specific reasons

TABLE 4. Association between socio demographic characteristics and symptoms remission

Characteristics n=155	Symptoms remission				Chi square	p value	OR	CI
	Yes		No					
	n	%	n	%				
Age (years)					6.32[a]	0.012	2.71	1.23-5.98
Younger (<35)	63	85.1	11	14.9				
Older (≥35)	55	67.9	26	32.1				
Gender					1.32[a]	0.25	1.59	
Male	88	78.6	24	21.4				
Female	30	69.8	13	30.2				
Marital status					1.39[a]	0.237	0.57	
Married	16	66.7	8	33.3				
Other status	102	77.9	29	22.1				
Total Income RM					1.75[a]	0.187	1.73	
Higher (> 1000)	46	82.1	10	17.9				
Lower (≤1000)	72	72.7	27	27.3				
Education status					8.14[b]	0.004	4.49	1.67-12.12
Higher	109	80.1	27	19.9				
Lower	9	47.4	10	52.6				
Employment					0.32[a]	0.57	1.29	
Employed	31	79.5	8	20.5				
Other status	87	75	29	25				
Family support					2.63[b]	0.105	3.53	
Yes	113	77.9	32	22.1				
No	5	50	5	50				
Social support					17.63[a]	<0.001	5.42	2.35-12.48
Good	102	83.6	20	16.4				
Poor	16	48.5	17	51.5				

[a]Pearson chi square [b]Yates correction *p<0.05

TABLE 5. Association between clinical variables and symptoms remission (n=155)

Characteristics n=155	Symptoms remission				Chi square	p value	OR	CI
	Yes		No					
	n	%	n	%				
Illness duration					9.32	0.002	3.33	1.50-7.37
Shorter	69	86.3	11	13.8				
Longer	49	65.3	26	34.7				
Duration CPS					0.001	0.974	0.987	-
Shorter	73	76	23	24				
Longer	45	76.3	14	23.7				
Antipsychotic					7.79[a]	0.051	(df=3)	-
Conventional oral	16	88.9	2	11.1				
Conventional depot	12	92.3	1	7.7				
Atypical oral	18	60.0	12	40.0				
Combination	72	76.6	22	23.4				
Medication compliance					3.66	0.056	2.361	0.96-5.79
Good	102	79.1	27	20.9				
Poor	16	61.5	10	38.5				
Involvement with substance					0.07	0.793	0.904	-
Yes	45	75	15	25				
No	73	76.8	22	23.2				

Pearson chi square *p<0.05, [a]2 cells (25%) have expected value count less than 5

TABLE 6. Factors significantly influencing symptom remission among schizophrenia patients receiving ACT

	B	Std Error	Wald	Exp (B)	p value	95% CI for B	
Good social support	1.572	0.449	12.26	4.82	<0.001	1.99	11.62
Higher Education	1.278	0.566	5.11	3.59	0.024	1.19	10.86

Nagelkerke R square = 0.252

for high prevalence of symptoms remission among this group of patients with similar form of treatment. Having a comparison group from a population not receiving ACT would better elucidate on whether a higher remission status is reflective to the service given.

FACTORS ASSOCIATED WITH SYMPTOM REMISSION

Another contribution of this study to the development of ACT programme is the examination of association between socio demographic and clinical characteristics with symptom remission. From bivariate analysis, age of less than 35 years old, higher educational level, good social support and shorter illness duration were found to be highly associated with having symptoms remission thus supporting an existing research on various predictor for symptoms remission in general. However, using multivariate analysis, only higher education and good social support were found to be the most significant factor influencing symptoms remission. Similarly Li et al. (2010), reported that 37% of a total of 90 patients met the resolution criteria in which they had a significantly higher level of education. The 3 year results of the schizophrenia outpatient health outcomes study revealed that being female, having a good level of social functioning at study entry and a shorter duration of illness were factors significantly associated with achieving remission. Treatment with olanzapine was also associated with a higher frequency of remission compared with other antipsychotic agents (Haro et al. 2006).

Other studies have also found a similar association between educational level and better psychopathological status in the disease progression. To date, most of the epidemiological research has found an increased well-being and mental health in people with higher levels of education. They were found to be better adjusted in social functioning and greater satisfaction with life. However, the literature showed different findings in the relationship between educational status and development of illness. In underdeveloped countries for instance, patients with higher educational levels appear to have a worse evolution in the disease, due to the higher social demands and expectations as compared with patients with low schooling (Clareci et al. 2005).

Strong social support was found to be strongly associated with having symptoms remission as evidenced by this study finding. Numerous studies have indicated that social support functions as a protection against pathology and could improve life satisfaction for people with long term mental illness. Similarly reported by Baker et al.

(1992) in his study of 844 people with severe mental illness receiving community support services found that the provision of case management service as one type of social support, was shown to improve respondents' subjective overall life satisfaction over the nine months period (Young 2006). In the context where acceptance to mental illness in Malaysia is generally lacking (Minas et al. 2011), the finding from this study on the importance of social support in predicting symptom remission may indicate the need for a more rigorous effort on strengthening social support system for this group of patients.

Schizophrenia is an illness that can cause disorganized thinking, hallucinations and delusions and lead to feeling depressed or flat and lack of motivation to act. As a serious mental illness, at different stages it can inhibit the ability to make meaningful connections with others. Hence, due to social stigma associated with serious mental illness, developing and maintaining relationship can be difficult. A support system is important for people living with schizophrenia and at the same time the illness places relationships at risk. Thus, the role of CPS is not limited to monitoring patient's condition at their environment but also to provide support. Mental health care providers like CPS team were often identified as the most supportive people in their live.

Some important deviations of note in the ACT programme in the study setting are: the case load ratio for each case manager is 1:40 patients which are relatively high as compared to most western countries (1:10); limitation of the provision of services to within working hours only rather than on a 24 h basis and the teams treated on average of 500 patients per month. Due to the high workload, not all patients receive monthly home visit, however visits are tailored to their clinical needs.

These deviations mentioned above are expected to be a common occurrence in the Malaysian service setting as lack of human resource is a common problem in the country. It is quite soothing though, that despite the mentioned challenges, this particular study and another local study by Rasidi (2011) yielded positive results, indicating the usefulness, still, of the low-resourced ACT programmes in Malaysia. It is generally observed in the Malaysian hospitals, with the implementation of ACT, albeit, not adequately resourced, that the rehospitalization rates into general hospital psychiatric wards as well as the transfer rates of patients into the mental hospitals have reduced over the years.

The interpretation of the present findings needs to be tempered by several methodological limitations of the

study, which may have affected the observations. First, this study was a cross sectional in nature and was carried out on schizophrenia patients with a single model of community care without control group. Time limitation, limited manpower and feasibility factor in getting a matched control group was among the constraints that it was conducted as cross-sectional. To address changes in the control population over the same time period, it would be interesting to compare longitudinally the effects of other treatment modalities on a similar study population. The most commonly reported methods for evaluating the effectiveness of treatments is a randomized control trial (RCT).

Second, in view of this study design, the exploration of causal relationships was rather tentative. Therefore, prospective studies would also be recommended in order to gain a better understanding of the complex interplay of factors involved in the outcomes of this group of patients receiving ACT with the aim of improving community mental health services.

Third, there was no baseline assessment on the aspect of clinical outcomes i.e symptoms severity to be compared with in order to determine on improvement of symptoms after receiving CPS. In future, it would be better to have a baseline data on symptoms severity during referral to CPS so that any changes can be measured objectively.

Finally, another limitation in this study is the measurement of social support. The use of a more refined rating scale such as the perceived social support scale may be included in future research in view of the prominent predictor in this study.

CONCLUSION

The ACT program has made an improvement to the mental health care in the community and has already proven to be a practical program to be carried out. It has made a lot of differences in the mental health care as shown in the decreased reliance on long term facilities by improving symptoms recovery. The social marker evidence in this study could be the target for intervention by mental health program to enhance the effective delivery of ACT.

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