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Assertive Community Treatment in China – it is time for a made-in-China solution

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We appreciate Firn *et al.*'s comments on our Chinese Assertive Community Treatment (ACT) study. They observed that proving ACT outperforms standard care is akin to proving a Ferrari is superior to a bicycle. This astute observation reflects the current gap between the Western-developed gold standard for community psychiatric treatment, ACT (Dixon, 2000) that we tested, and the standard care available in a low- to middle-income country like China. We are grateful for the chance to engage with this critique.

To start, Firn *et al.* observed rightfully a substantial difference in client contacts between the ACT team and the control. The estimated number of client contacts contrasting the ACT team and the control was roughly 8–10/month *v.* 0.3–2/month, respectively. This difference, however, must be set in context. From a historical perspective, this differential in service intensity between the study and control arms was akin to the conditions that the original ACT founders Stein and Test (1980) studied in Madison, Wisconsin. Similarly, the validation of the ACT model for the first time in mainland China, where the political, cultural, and socioeconomic conditions are vastly different from other areas that ACT has been studied, makes this RCT study worthwhile. It is particularly notable that the standard care received by the controls was itself part of a major new national program, the Severe Mental Illness Management and Treatment Project – also known as '686 program' – that substantially up-scaled basic community services for millions of Chinese patients (Good and Good, 2012). More generally, studies to identify key ingredients accounting for ACT's success show the sheer number of client contacts alone could not explain its positive outcome (Brugha *et al.*, 2012). Our study has proven that ACT is useable and effective in mainland China, demonstrating that the drivers, road clearance, traffic conditions, and the supporting mechanics are available and suitable for the Ferrari to function in this setting.

Firn *et al.* suggest that flexible ACT (FACT) is a worthwhile alternative. When compared with ACT, FACT serves a wider array of mental disorders, higher number of patients per worker, employing more evidence-based psychotherapies, and has the ability to tailor the intensity of services according to the current level of need of the patient. The preliminary evidence of FACT is very promising (Nugter *et al.*, 2016; Firn *et al.*, 2018) and newer adoptions are expanding (Nakhost *et al.*, 2017). Unfortunately, the resource issues that limit ACT's wide applicability in China at this time – 40% of the 18 million people with severe mental illness have never received any treatment (Phillips *et al.*, 2009) – are similarly limiting for FACT. FACT uses similar amount of human and financial resources as an ACT (daily meetings, high levels of psychiatrist involvement, a full complement of multi-disciplinary workers), albeit serving 2–3 times more clients (van Veldhuizen, 2007). While potentially a system-changing innovation for developed countries where ACT has been widely adopted, for China, FACT like ACT will still only be a minute part at the top end of the continuum that serves the most severely ill. [One of the authors (SFL) presented and discussed the FACT model in China at the Harvard China Fogerty Conference in 2015 and received a very mixed reception.] In other words, as we peek under the hood, FACT is more like a Lexus and not so much a common Toyota for China.

We agree with the call of Firn *et al.* to reflect on how to develop another 'intermediate model'. It is clear that there is a need for a culturally relevant model that is empirically effective, affordable, and adaptable. One approach is simply to remove some components of ACT and study the impact. Such 'dismantling' studies, to date, are limited and would still be constrained by the ACT original framework (Hu and Jerrell, 1991). In the USA, efforts to understand the 'key ingredients' in ACT [the Critical Components of Assertive Community Treatment Interview (CCACTI)] found highly consensual and internally consistent results from the experts who created ACT in the first place. This original research did become the guiding blueprint for development of ACT henceforth (McGrew and Bond, 1995). The ACT fidelity scales, in their refinements and iterations, were largely based on this foundation (e.g. Monroe-DeVita *et al.*, 2011). Developing a simpler Chinese intermediate model may not find easy guidance there.

Other research findings may be more helpful. Fiander and Burns (1998) identified in a Delphi study that good community care for schizophrenia should include: full range of

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accommodation, outreach, medication optimization, proper psychiatric assessments, adequate in-patient support, rehabilitation activities, psychosocial support packages, and rapid response for crisis. Another study found six regularly occurring features of good community care: smaller case loads, regularly visiting at home, a high percentage of contacts at home, responsibility for health and social care, multidisciplinary teams and a psychiatrist integrated in the team. However, only two of these, regularly visiting at home and responsibility for health and social care, were significantly associated with a reduction in hospitalization (Burns *et al*., 2006). A further English study on all Assertive Outreach teams found none of the following components individually significantly predicted hospitalization reduction, including joint health and social care, length of the team in operation, urbanicity (distance traveled to see patients), staff number per team, case load, after-hours on calls, a psychiatrist on the team, availability of specialist skills (e.g. addictions), and specialist psychological interventions; only past admissions predicted significant positive outcome (Brugha *et al*., 2012).

The other approach is to look beyond 'critical components' of the model to the broader health system. ACT studies in Europe have produced mixed results, likely attributable to socio-economic and health systems differences. Particularly where the local basic level of community care was quite advanced already, ACT appeared less effective (e.g. Killaspy *et al*., 2006). Similarly, the comprehensive Cochrane's meta-regression review on community psychiatric models pointed to *both* fidelity to the ACT model and a high 'baseline hospital use' predicted positive outcomes for ACT-like services (Dieterich *et al*., 2017). If these two variables were combined in the analysis, the ACT fidelity variable was no longer significant, but the high hospitalization base rate remained so. Therefore, a systemic factor, outside of questions about the model itself, was more powerfully explaining why services like ACT work (Catty *et al*., 2002; Dieterich *et al*., 2017). The rapid rate of system change in China, enabled by almost unique levels of central planning – exemplified by the '686 Project', the new Mental Health Act (Phillips, 2013), the current National Mental Health Work Plan (2015–2020) to improve service coordination (Xiong and Phillips, 2016), and latest mandate to include mental health treatment and rehabilitation in basic medical insurance plans – suggest significant potential to shift in quality and the context of community service delivery.

System change will also need to look beyond formal institutions of the health system to effectively tap into some of the most important resources for effective community care in a Chinese context. In China, family is the *de facto* community care service as over 90% of patients live with their families, and even severely ill patients have much lower levels of homelessness, substance use, and violent history (Wang *et al*., 2016). Our experience shows family support and psychoeducation are vital – we had very positive and appreciative qualitative feedback from many families.

Much of the work assessing the impact of ACT has focused on decreasing hospitalization. A full assessment of any intermediate model should also provide the opportunity to define local priorities, such as family support and satisfaction, reducing social disturbances, social reintegration, improving quality of life and rehabilitation, etc., beyond hospitalization reduction.

At the end, this discussion may lead China to re-examine the ACT model from its very beginning, be inspired by the FACT innovations, and seek a made-in-China approach. It could start by harvesting the experience and input of Chinese experts and consumers, using a Delphi approach, followed by defining and evaluating key ingredients and develop its own fidelity scales, and perhaps producing a hybrid vehicle that is a model of the future.

Last but not the least, while it is exciting to speculate all the above, our ability to reproduce and validate a moderately high fidelity ACT in China has far-reaching immediate implications in itself. Both ACT and FACT fundamentally embody, through its recovery-oriented philosophy and intensive approach, a patient-centered treatment that is still largely foreign to Chinese practices. Current Chinese community mental health services still focus primarily on the rate of registration of patients, and ensuring low social disturbances caused by these patients through 'supervision'. One uncommon yet remarkable outcome in our study was the significant reduction in negative schizophrenia symptoms – this was likely a testimony to this model's capacity to promote social acceptance and integration, provide social skill training, and combat stigma. Thus, this successful ACT study can spur changes in China as a locally workable, internationally informed standard to promote much needed patient care model reform, and improvement and standardization of training of mental health workers in China.

Conflict of interest. None.

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