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FINANCIAL PERFORMANCE AND OUTREACH OF MICROFINANCE

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ABSTRACT

Microfinance is generally considered as a power tool for poverty alleviation. However, the development of microfinance leads to a concern about self-sufficiency of microfinance institutions (MFIs). MFIs are expected not only to serve the poor but also to become profitable; and therefore adapting more commercial practices. From the point of view, the commercialization trend of microfinance has raised a debate that whether the focuses on financial objectives go against the original goal of reducing poverty. Using cross-sectional data of Indian MFIs in 2010 collected from the MIX, this dissertation aims to explain determinants of MFIs' performance in terms of financial objectives and outreach to the poor. The paper also tries to address the trade-off between financial success outcomes and poverty reduction purposes. The study reveals that no evidences of this trade-off are found, indicating that it is possible to maintain greater outreach to the poor in a financially viable way.

Key words: *Microfinance, commercialization, outreach*

INTRODUCTION

The principle of diminishing marginal return to capital implies that money should flow from rich depositors to poor enterprises. Nonetheless, asymmetric information in credit market may create inefficiencies in allocating resources, especially in poor and rural regions. These factors explain why traditional commercial banks have such a hard time serving the poor, even households with high return. This lack of access may lead to poverty trap and income inequality (Beck *et al.*, 2007). Enthused by the success of Grameen Bank in Bangladesh, microfinance has been considered as a powerful way to bridge the gap in accessing credit facilities for the poor, who would be excluded from formal financial sector. Consequently, the innovative lending methods that microfinance provides have helped a huge amount of poor clients graduate out of poverty with the very high repayment rates.

Microfinance institutions (MFIs) have dual operational missions: making profit and bring access to finance to low-income clients to improve their welfare. Yet, microfinance is currently confronted with the challenges of meeting the double bottom line objectives. High repayment rates do not necessarily mean high profits. In fact, majority of MFIs still operate with the assistance of donations. This has raised a concern about the sustainability of MFIs. The advocates of sustainability approach argue that MFIs should be able to finance their costs though the returns generated from their operations. As a result, they can borrow money from commercial banks, and therefore reducing their dependency on subsidies. By owning a larger asset base from capital market than relying on donors, MFIs hence serve a greater number of the poor (Ghosh and Van Tassel, 2008). On the other side, the proponents of focusing on poverty-fighting purpose worry about mission drift, which is a phenomenon that the pursuit of profitability may lead to serving wealthier clients, who can require greater loans; and turning away from the poorest clients. With transformation into commercial principles and practices, profits can be earned by investors, providing the opportunity to attract shareholders with limited social goals. These profit-driven shareholders may negatively affect outreach of

microfinance– serving the poor (Ghosh and Van Tassel, 2008). Up until now, this debate still remains unresolved, mostly due to lack of empirical evidences.

Given the main concern about attaining sustainability and outreach of MFIs, This paperis amied at assessing whether sustainability and outreach are substitutes or complements by performing an empirical study with a representative data of microfinance sector in one particular country. The sample country studied is India, which is one of the poorest countries over the world and has a long tradition of microfinance. This is essential for MFIs and policy makers in dealing with poverty alleviation issues in a self-sufficient manner.

RESEARCH METHOD

Empirical analysis of the patterns of profitability and outreach in India

The empirical research is conducted with data from the Microfinance Information Exchange (the MIX), not-profit private organization whose aim to promote information exchange in the microfinance industry. Information is collected on a wide range of variables associated with outreach indicators, financial performance, age of MFIs, size of the total asset and loan portfolio of 97 MFIs in India listed on the MIX in 2010. The important feature of MIX data is qualitative information about the India MFIs in terms of the profit status, institution types, and maturity of MFIs (age and size). This information allows us to conduct more comprehensive analysis of the relationship between depth of outreach and financial sustainability of MFIs. The descriptive statistics reveal the predominant trend toward NBFCs and NGO-MFIs in Indian microfinance in terms of legal type, and the Grameen model on the basis of loan delivery methodology. However, using MIX dataset has a number of limitations. There is a potential self-reporting bias because the data is collected from reports submitted by MFIs. In addition, the choice of variables is also constrained with some MFIs deciding to not report some certain variables. For these reasons, the number of observations is slightly reduced to conduct the analysis.

In this research, profitability and trade-off are considered individually in different regression models. While a regression model for profitability patterns merely aims to empirically investigate which factors affect financial performance of MFIs, the analysis with respect to outreach does not only look at determinants of outreach of microfinance in India, but also explore evidences of the trade-off between social objective and financial objective. All the calculations are carried out using Stata/SE 11.0.

These analysis aims to compare with the results of Cull *et al*. (2007, 2009) to determine whether the findings leading international MFIs still hold in the single country context. However, the dataset has some drawbacks that constrain the analysis in several ways. Most seriously, the sample is not very well suitable for the analysis on mission drift. This is because checking concerns like mission drift requires involving in adaption over time. But, the dataset is cross-sectional and consists of information about India MFIs in 2010 only. Thus, the research mainly focuses on analyzing the factors potentially affect the pattern of profitability and outreach as well as the possible relationship between them.

Although the static cross-section data does not allow for an actual mission drift analysis, the comments made from the analysis are still valuable. According to Kar (2010), the issues relating to the mission of poverty reduction, scaling up, institutional transformation, and institutional sustainability of MFIs are inter-dependable on each other. Thus, the investigation in the outreach and profitability determinants, and the trade-off between them could have implications for mission drift, which may be result of transformation of MFIs and scaling up process.

Model description

The aim of this study is to investigate what to extent to profitability and outreach of microfinance firms and to attempt to answer the question that whether there is sign of trade-off between outreach and profit in Indian microfinance industry. Moreover, the effects of institutional variables, based on existing literature, are also tested.

The regression model for analyzing the profitability patterns is:

$$\text{Profit}_i = \alpha_i + \beta_1 \times \text{Yield}_i + \beta_2 \times \text{Cost}_i + \beta_3 \times \text{Age}_i + \beta_4 \times \text{Size}_i + \beta_5 \times \text{Loans to assets ratio}_i + \beta_6 \times \text{Institution type}_i + \beta_7 \times \text{Lending method}_i$$

The analysis on profitability patterns employs two indicators of financial performance as dependent variables. This is return on asset (ROA) and operating self-sufficiency (OSS). The regression model for analyzing the outreach patterns is:

$$\text{Outreach}_i = \alpha_i + \beta_1 \times \text{Financial performance}_i + \beta_2 \times \text{Yield}_i + \beta_3 \times \text{Cost}_i + \beta_4 \times \text{Age}_i + \beta_5 \times \text{Size}_i + \beta_6 \times \text{Loan assets ratio}_i + \beta_7 \times \text{Institution type}_i + \beta_8 \times \text{Lending method}_i$$

In the analysis for outreach, the main dependent variable is average loan size, which is defined as the total value of gross loan portfolio divided by number of loan outstanding. The variable is measured in US dollar (USD). However, using average loan size as a proxy for outreach has some limitations. The validity of average loan size in measuring outreach depends on an assumption that wealthier clients are being served with larger loans, while only the poorest are willing to take the very small loans. However, this assumption could be violated in reality. The large enterprises sometimes apply for small loans, whereas the poor borrowers may demand for larger loans after successful repaid loans (progressive lending). For this reason, the loan size proxy is a rough measure, and therefore an alternative indicator is necessary to evaluate the social benefits of microfinance for the poor.

Obviously, the role of women in microfinance is important. Although not all the MFIs concentrate specifically on serving women, females make up 80% of clients of the thirty-four largest MFIs (Mody, as cited in Armendariz and Morduch, 2005). Women are overrepresented among the poorest of the poor and empowerment to women can lead to greater effects on households (Armendariz and Morduch, 2005). Thus, in the literature, the percent of women is usually used to reflect indirectly outreach of microfinance (Schreiner, 2002). There are many papers, most notably the benchmark study by Cull *et al*. (2007), using this ratio to measure outreach of microfinance. Thus, in addition to average loan size, the dissertation employs the share of female clients to measure the outreach. In order to exploit the patterns of outreach to empowerment to women, the regressions are made separately with the share of females as the dependent variable.

From estimation, the correlation between average loan size and percent of women borrowers is negative, indicating Indian women require smaller loans rather than men do, i.e. men are richer than women. As a result, the negative link between social performance and financial objective is evaluated by a positive impact on average loan size and a negative effect on the share of females.

The right-hand side (RHS) variables in both models are selected in a similar way of Cull *et al*. (2007). Therefore, although the availability of data is constrained to some extent, the results conducted here could be compared as much as possible. Moreover, some variables, based on the related literature reviewed, are added to the model in order to assess the additional effects that Cull *et al*. (2007) have not tested.

RESULTS AND DISCUSSION

The outcomes from the visual and numerous approaches indicate that there are possibilities of non-constant error variances in most of regression models, except the profitability regression in ROA specification. Therefore, the robust regression is used in both profitability analyses with OSS specification and outreach analyses, whereas the OLS regression is applied to the profitability regression in ROA specification.

Profitability analysis

The most remarkable observation to emerge from the results of regression for return on asset and operating self-sufficiency suggest that the financial performance of India MFIs mainly depends on operation variables, but not on characteristics of the organization (Table 1). The results is also agree to those of Cull *et al*. (2009) from the point of view that certain lending types are more often profitable than other. But, regression models show that financial performances of different institutional types do not symmetrically differ in the India microfinance sector.

The profitability analysis of the India microfinance sector is studies with a regression approach, where profitability is illustrated by both level of exhaustion of earning on asset - ROA ratio, and level of operating self-sufficiency of MFIs - OSS ratio. The real gross portfolio yield coefficient is positive and

Table 1. Regression result for profitability

	ROA		OSS			
	OLS regression result		Robust regression result		OLS regression result	
	Coefficient estimate	p-value	Coefficient estimate	p-value	Coefficient estimate	p-value
Constant	**0.008**	0.856	**0.854**	0.000	**0.854**	0.001
	(0.044)		(0.204)		(0.238)	
Yield	**0.565**	0.000	**1.784**	0.000	**1.784**	0.000
	(0.062)		(0.293)		(0.338)	
Labor cost	**0.001**	0.996	**-0.803**	0.312	**-0.803**	0.474
	(0.205)		(0.786)		(1.113)	
Operation cost	**-0.787**	0.000	**-2.502**	0.000	**-2.502**	0.001
	(0.132)		(0.511)		(0.715)	
Financial cost	**-0.659**	0.000	**-2.472**	0.000	**-2.472**	0.002
	(0.137)		(0.6236)		(0.741)	
Mature	**-0.009**	0.333	**-0.053**	0.302	**-0.053**	0.293
	(0.009)		(0.051)		(0.050)	
New	**0.012**	0.215	**0.077**	0.101	**0.077**	0.137
	(0.009)		(0.046)		(0.051)	
lnasset	**-0.003**	0.305	**0.006**	0.634	**0.006**	0.671
	(0.003)		(0.012)		(0.014)	
Loan to assets ratio	**0.160**	0.000	**0.667**	0.000	**0.667**	0.000
	(0.029)		(0.131)		(0.158)	
NBFI	**-0.017**	0.204	**-0.094**	0.174	**-0.094**	0.181
	(0.013)		(0.068)		(0.070)	
NGO	**-0.008**	0.503	**-0.045**	0.505	**-0.045**	0.497
	(0.012)		(0.066)		(0.065)	
The Grameen model MFIs	**0.012**	0.106	**0.031**	0.095	**0.031**	0.080
	(0.007)		(0.019)		(0.017)	
Individual lenders	**-0.002**	0.070	**0.084**	0.414	**0.084**	0.228
	(0.001)		(0.102)		(0.069)	
R – Square	0.801		0.684		0.684	
Obvervations	64		64		64	

Note: Value in brackets indicates the Standard error of the corresponding coefficient
Source: Author's calculation, based on data from The MIX, 2010

significant across all financial performance proxies, suggesting that raising interest rates could lead to better financial performance. This result could lead to an implication of agency theory, which is referred to a situation when lenders suffer informational asymmetry, and borrowers lack collateral, increasing interest rate to a certain point could cause the adverse selection. In the case of India microfinance, the positive relationship between portfolio yield and profitability implies the role of group lending and peer monitoring on mitigating adverse selection.

The results from the regression model also suggest strong negative relationship between financial performance and operating cost by significant and negative coefficients for the operating cost to asset ratio. The similar results are hold for financial cost to asset. In short, from the regression we can see that MFI's earning profit could be increased by reducing operating cost and financial cost. Contrarily, the coefficients of labor cost to asset ratio are not significant, and therefore do not show any evidence of personnel expense effect on profitability. In the paper 2007, Cull *et al*. pointed out a positive relationship between labor cost and financial performance. They explained that individual lenders have to involve in assessment and monitoring

activities, which require many labor cost. For the reason, the lenders could disburse larger loans to creditworthy clients and therefore increasing profits. However, in the case of India, most of MFIs employ group lending approach with the peer monitoring mechanism. The borrowers within a group monitor each other and use social sanctions to ensure repayment (Armendariz and Morduch, 2005). Thus, the cost of monitoring and loan collection is minimized to a fixed level. As a result, a change in labor cost is not associated to improved profitability.

The regression analysis reveals that determinants of profitability are not only yield, and costs of MFIs but also orientation of institutions. The first factor that reflects institutions' orientation toward their core activities is the loan to asset ratio. As discussed before, this ratio reflects the focus on lending activities of a credit institution. A higher ratio indicates higher level of risk carried by the institution but higher net interest income. The result from regression analysis show there are statistically significant and positive coefficients for the loan to asset ratio in all models. This implies that institutions concentrating primarily on giving loans are more often profitable, whereas those using asset in other activities tend to be least profitable. This is quite intuitive that companies taking self-sufficiency seriously usually focus on their core operation in other to exploit economies of scale.

The institution type can be considered as an orientation proxy. According to Cull *et al*. (2009), financial performance of MFIs could differ by the institutional types. However, interestingly, no significant differences are found in India between NGOs, NBFIs, and other legal forms. The coefficients for the charter type dummy variables are insignificant across all models. Thus, from this point of view the conclusion by Zeller and Johannsen (2006), Cull *et al*. (2009) does not hold in India microfinance sector. This result is surprising because sustainability-driven scaling up results in increasing number of MFIs started to transform to for-profit NBFCs.

The last variable indicating orientation of institution is lending method. The regression results support to the outcome of Zeller and Johannsen (2006), and Cull *et al*. (2009). The coefficients for lending method dummies provide evidence of the correlation between earning profits and lending approach. With respect to how effective management is at using asset to generate earnings, the regression implies that MFIs employing the Grameen model with joint liability and those using individual banking method have a higher ROA ratio than SHG-based MFIs. This is mainly to do with the operation approach. While loans in the Grameen model is allocated rotationally to each group members (and to single borrower in the individual lending approach), the self-help groups receive initial loans and then self-allocate to their members. The laissez-faire approach in the SHG method more often leads to the problem of moral hazard. Thus, the SHG method more often put MFIs at risk of group collusion. On the other hand, the Grameen-inspired MFIs seem to be able to gain profit more efficiently than individual lenders. This could be explained by lower costs of screening and monitoring though peer monitoring mechanism. In terms of sustainability of operation, the regression however presents a disparate finding. The significant lending type dummies suggest that the Grameen model MFIs are performing better than SHG-based institutions.

These findings support the idea of Cull *et al.* (2009) that certain lending methods are more likely to perform better in terms of pursuing profits. In fact, the Grameen model are the most profitable group overall. This is reason why an increasing number of India MFIs employ the Grameen model in order to achieve profitability. However, other factors, namely interest rate, costs and level of focus on lending activities, also play important roles in determining profitability of MFIs in India.

Outreach analysis

An interesting result from the regression is that the yield coefficients are statistically significant and positive in the specification of the share of women. This means an increase in interest rate is associated with lending more to female clients. This suggests that women borrowers in India can afford for higher interest rate than man. In addition, the fact that the significant correlation between average loan size and the percent of female borrowers implies that Indian women are expected to be poorer than man. Taken these evidences together, it could be understood that although women are poorer than man, their potentials to moving out of poverty is relative high. According to Table 2, the number of women involving in businesses funded by micro-loans is predominating in many areas. Indian women with access to loans can generate and control their own income more effectively than men, therefore being able to pay higher interest rate. More interestingly, in the regression on average loan size, no effect of yield was found. This could be explained

Table 2. Regression result for outreach; the share of women clients as dependent variable

	Robustregression result				OLS regression result			
	Coefficient estimate	p-value	Coefficient estimate	p-value	Coefficient estimate	p-value	Coefficient estimate	p-value
Constant	**1.264**	0	**1.366**	0	**1.264**	0	**1.366**	0
	(0.282)		(0.357)		(0.252)		(0.279)	
ROA	**-0.370**	0.56			**-0.370**	0.627		
	(0.630)				(0.756)			
OSS			**-0.112**	0.515			**-0.112**	0.402
			(0.170)				(0.132)	
Yield	**0.799**	0.087	**0.802**	0.076	**0.799**	0.139	**0.802**	0.076
	(0.458)		(0.442)		(0.531)		(0.441)	
Labor cost	**2.034**	0.071	**1.941**	0.054	**2.034**	0.075	**1.941**	0.089
	(1.099)		(0.981)		(1.115)		(1.117)	
Operation cost	**-1.598**	0.067	**-1.604**	0.072	**-1.598**	0.088	**-1.604**	0.059
	(0.851)		(0.871)		(0.916)		(0.827)	
Financial cost	-0.638	0.461	-0.687	0.44	-0.638	0.463	-0.687	0.398
	(0.857)		(0.883)		(0.862)		(0.805)	
Mature	0.066	0.118	0.063	0.128	0.066	0.193	0.063	0.213
	(0.042)		(0.041)		(0.050)		(0.050)	
New	-0.029	0.454	-0.024	0.511	-0.029	0.569	-0.024	0.635
	(0.038)		(0.036)		(0.050)		(0.050)	
lnasset	-0.029	0.103	-0.028	0.122	**-0.029**	0.038	**-0.028**	0.048
	(0.018)		(0.018)		(0.014)		(0.014)	
Loan to assets ratio	0.068	0.76	0.088	0.655	0.068	0.74	0.088	0.655
	(0.221)		(0.196)		(0.203)		(0.196)	
NBFI	0.161	0.225	0.156	0.205	0.161	0.024	0.156	0.029
	(0.131)		(0.121)		(0.069)		(0.069)	
NGO	0.125	0.352	0.122	0.339	0.125	0.061	0.122	0.066
	(0.133)		(0.126)		(0.065)		(0.065)	
The Grameen model MFIs	-0.028	0.581	-0.039	0.502	-0.028	0.643	-0.039	0.521
	(0.051)		(0.057)		(0.061)		(0.060)	
SHG-MFIs	-0.046	0.447	-0.056	0.414	-0.046	0.486	-0.056	0.396
	(0.060)		(0.069)		(0.066)		(0.066)	
R – Square	0.284		0.291		0.284		0.2914	
Obvervations	60		60		60		60	

Note: Value in brackets indicates the Standard error of the corresponding coefficient
Source: Author's calculation, based on data from The MIX, 2010

that increasing in interest rate is not related to serving the poorer clients. In other word, higher interest rates do not limit the poor's ability to acquire micro-loans. Implicitly, the result supports the financial system approach perspective that the poor can pay for higher interest rate as long as they have opportunities to access to banking services.

The regression shows that which the estimated coefficients for labor cost to asset ratio and operating cost to asset ratio are significant, whereas the financial cost to asset ratio coefficients do not receive any

significance. This indicates that labor cost and operating cost are significantly correlated with outreach to women; and financial cost does not have any significant impact on the share of female borrowers. The positive relationship between labor cost and the share of females implies the more meetings and training programs are conducted, the more opportunities for women access to banking services. In other word, lending to women borrowers could be increased by expending social events, such as group meetings, training programs, which require more cost of labor. Similarly, operating cost, which have negative impact on the number of female borrowers, should be reduced in order to increase the share of women. In the average loan size specification, the estimated coefficients for costs are insignificant, implying that although reducing financial and operating costs could improve financial performance, it is not lead to a better outreach to the poorer.

Maturity of MFIs, which is measured by age and size of MFIs, is generally considered as determining factor of microfinance outreach. The analysis suggests there is no significant evidence of relationship between age and size of MFIs and outreach of microfinance. The age coefficients are insignificant in any of regressions. The effects of maturity of MFIs may have some important implications for mission drift issue. According to Cull *et al*. (2007), mission drift occurs when MFIs grow larger and increasingly concentrate on wealthier borrowers. But, the results here imply that the maturity of MFIs is not strongly associated with both financial performance and outreach of microfinance. Thus, mission drift may not occur in India microfinance.

Similar to the analysis on profitability patterns, the orientation factors may have explanatory power to outreach. The loan to asset ratio, which measures the focus on lending activities of MFIs, does not receive any significant correlation with serving the poor. These coefficients are not significant across specification and models. This indicates that MFIs relying mainly on interest income do not necessarily serve larger loans. The fact contrasts the trend toward sustainability that MFIs concentrate on lending are more likely to achieve sustainability. Thus, focusing on lending activities can help MFIs improve financial performance but not their level of outreach. According to a larger number of studies on the determinants of outreach such as Zeller and Johannsen (2007), Cull *et al.* (2009) and Ylinen (2010), outreach could be a factor of institutional type variable. The results from India microfinance reveal an equivalent pattern that average loan size, as an outreach indicator, varies between different institutional types. In the regression to average loan size, the negative and significant coefficients for NGO, NBFCs dummies indicate that MFIs in 'other' category (omitted), mostly banks and credit unions/ cooperatives, tend to disburse the larger loans than NBFCs and NGOs. These coefficients also imply that the outreach of MFIs operating as NBFCs is deeper than NGOs. It is quite surprising, since NGOs usually have an exclusive poverty focus, which NBFCs do not have. In addition, the analysis suggests that there is no significant effect of legal type variable on outreach in terms of lending to women. This is because empowerment to women is a main objective of India microfinance. Thus, majority of MFIs, regardless of institutional types, target in female borrowers. Finally, loan delivery method is a factor that potentially has influence on outreach. However, surprisingly, the lending type dummies coefficients are insignificant across all specifications and models, indicating that no difference in reaching out the poorest or women borrowers between lending approaches was observed. That means no matter what lending method used is, MFIs' level of outreach is not influenced.

The results from India are in agreement with the conclusion of Cull *et al*. (2007) to some degree. In this paper, they suggest that earning profits and serving the poor are compatible objectives. The negative relationship amongst them does not exist in most circumstances. Cull *et al*. (2007) also argue mission drift seems to occur when MFIs, especially individual lenders, mature and grow to a certain level. The analyses in the current study support the compatible relationship between financial performance and outreach. However, no evidence of effects of MFIs' maturity is detected. Although these evidences from India microfinance are not strong enough to entirely prove or refute the Cull *et al.* (2007)'s findings, the insignificant coefficients for financial performance indicators still reflect their outcomes are valid in the context of Indian microfinance. In addition, outreach dynamic in India is determined by other underlying factors.

The outreach pattern analysis has low coefficient of determination (below 0.5), suggesting the regression models seem to not fit the date reasonably well. The inferences thus should be made with caution. Though the goodness of fit measures is quite equivalent to those obtained by Cull *et al*. (2007), the models may not succeed in evaluating the determinants of average loan size or the proportion of women clients systematically. But, it should be remembered that the measure of fit can be artificially increased by adding more explanatory variables to the models. In practice, the model is not perfect and additional information is necessary for the analyses to be more reliable. Also, there are some other drawbacks. The omitted variables may be related to biased estimates of the coefficients and the direction of causality is difficulty to conclude.

CONCLUSION

The analysis relating to profitability somewhat agreed with earlier outcomes that MFIs using various lending approaches have reached sustainability at different levels. The result shows that MFIs using the Grameen model are more likely to be profitable in relation to other loan delivery methods. A possible explanation for this might be that giving loans to individuals in joint-liability group of Grameen model could reduce costs of screening and monitoring as well as avoid group collusion. This finding could help to explain reason why India MFIs refer the Grameen model in order to achieve sustainability. Nevertheless, the analysis also suggests that there is no significant difference in financial performance between institutional types.

The study on outreach of India microfinance produces results which are consistent with the former phase of the reference article. Evidences of the trade-off between financial performance measures and outreach could not be identified in the analysis, indicating these objectives could be compatible. However, effects of maturity of MFIs on outreach are not significant in this current study. Moreover, there are some other underlying variables, which have impacts on serving the poor. From this perspective, the findings here can be extended to explain the implication of mission drift. Although mission drift is difficult to measure directly, the independency between profitability, outreach and maturity of MFIs indicates that mission drift is not a problem, at least not as the moment studied. In addition, because these findings are limited by the use of a cross-sectional design, further research should concentrate on mission drift issues with involving in time adaption.

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