Labor force participation of married women with tertiary education and its association with childcare arrangement: An explanatory sequential mixed-method approach

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ABSTRACT

As compared to the rest of the ASEAN countries, Malaysia's women labor force participation rate has remained low and it is below the global average. In addition, a deeper analysis revealed that the participation rate among educated women in the labor force participation had decreased. Recognizing the important role of women in the economy, this study examined the factors related with the involvement of educated women in the labor market. For those with children, child care arrangements associated with the employment status of educated mothers had been explored. Through the application of an explanatory sequential explanatory mixed-method approach, the objectives of this research were carried out based on a combined framework with the Theory of the Allocation of Time, as the dominant framework having partial common ground with the Theory of Investment in Human Capital. For the quantitative session, responses from 419 married women collected via an online survey was analyzed by using Binary Logistic Regression. Six of the twelve variables (residential location, women's age group, women's education, husband's education, husband's income, have children aged less than six years old) proved a significant result for the participation of married women in the labor market. For that reason, the importance of child care arrangement was further explored. In the second phase, the

qualitative part, involved in-depth interviews with nine educated married women to prove three themes: the childcare cost, availability of childcare center, and safety of children. The conclusion that can be drawn from this study is, affordable and quality child care centers are effective ways to increase involvement of women with tertiary education in the labor market. Better quality nurseries should be established and mother-friendly working policies need to be implemented in Malaysia.

Keywords: labor force participation, married women, childcare arrangement, mixed-method

INTRODUCTION

As a part of the labor force, women also possess a crucial role in a country's economic progress [1]. However, the participation rate of women in the labor market, which increases very slowly, is a prior concern as it creates a significant challenge to unlock the potential of women to fully impart towards the development of the economy society, and their family.

In Malaysia, the labor force participation rate (LFPR) among women was at 55.6 percent in 2019, which is regarded as low compared to the nearest neighbors, such as Vietnam at 73.0 percent, Thailand at 59.0 percent, and Singapore at 62.0 percent.

With regard to the expanding number of the overall output of graduates in public higher institutions in Malaysia, it can be noted that the number of female graduates always surpasses the male graduates [1, 2] In addition, education level does not only affect the returns to supplying labor, but it also enhances the probability of being in the labor market [3]. Therefore, given the number of graduates, more educated women ought to be in the labor market.

In view of a study undertaken by the Malaysian Ministry of Women, Family, and Community Development and the United Nations Development Program [4], in 2014, 66.9% of married women in Malaysia were unemployed as they needed to care for their children. Meanwhile, for working women, it had been asserted that the expense of childcare relies upon their salary, number of kids, and their children's age [5].

Most studies concerning the determinants of women's participation in the Malaysian labor market looked into a few variables including the number of children and the lower-aged children that tremendously affect the amount of participation[6, 7]. Nonetheless, the real problem related to the presence of small children that affects a mother's employment status is only discussed in general perspectives [6, 8-10]. Thus, limited research had looked into child care arrangements and discussed it further.

For that reason, this study bridged the gap. The main purpose of this research was to ascertain the supply-side determinants of participation among educated married women in the Malaysian labor market. Besides, the association between children's arrangement and women's work status had been studied. By determine the causes that keep educated women withdraw from labor market, existing government policies can be enhanced. This will increase the participation of married women in the labor market in Malaysia without neglecting their responsibilities in the household, and in turn increase the country's economy.

LITERATURE REVIEW

The existing identified factors that determine women's involvement in the labor market at a macro level are inadequate in explaining the women decision to work or otherwise. Hence, research at a micro-level is needed since this approach allows each individual to be analyzed in further detail [9, 11, 12].

This literature review section is divided into four parts, covering the relevant theoretical study, the factors that determine the involvement of educated married women in the labor market and the factors associated with the childcare arrangement.

Theory of Allocation of Time

Due to the extension of the utility maximization problem of consumer theory, economists have traditionally analyzed labor supply through the Neoclassical Model of Allocation of Time or the Model of Labor-Leisure Choice [13-16]. Thus, the new aspect is how individuals make choices in deciding how they will spend a fixed amount of time.

The salary that an individual can request comprises a significant factor in the decision of the amount of work provided. In this way, for an employee, an expansion in the actual rate of salary will contribute towards a propensity to work longer hours, and hence, brings about leisure time would turn out to be moderately more costly for them. This theory perceives that women do not just parley among leisure and working hours, but also among their time, work, and their creation of home goods and services in the household.

Human Capital Theory

The theory of Investment in Human Capital or the Human Capital Theory recommends that education or training has expanded the productivity of employees by bestowing valuable information and aptitudes, along these lines to improve employees' future salary by increasing their lifetime income [13]. In this manner, it tends to contend that with skills and knowledge gained from the higher levels of education received, the individuals in the society would become increasingly gainful, talented, and well-prepared. Moreover, the theory also proposes that education and employment are the two most significant elements of individuals' earnings with regard to education, while employment opportunities will in general balance individuals' earnings ([13]. Faridi, Chaudry, and Malik [17] suggested that the education of the workers turn out being a noteworthy determinant in labor force participation. Thus, the Human Capital Theory regarded involvement in education as an investment in human capital, which explained that the greater the amount on education attainment, the higher the involvement rate in the labor market[13].

Factors determined labor supply of married women

For married women, *income* earned by husbands is generally responsible for fulfilling the financial needs of the family. Thus, a small or large income of the husband is often seen as a feature that also affects the wife's involvement in the labor market. For those who married to a husband with higher earnings, [13]stated that the husband will grant his spouse to reduce her market work in order to give more attention on household chores. According to Sasaki [18], the participation of the labor force among Japanese women was significantly and negatively associated with the husband's earnings. Similarly in Pakistan, the empirical result shows that a husband's income was inversely correlated with women's involvement in the labor force. Meanwhile, referring to the situation in Malaysia, a study carried out by Rahmah and Noorasiah (2014) and Nor'Aznin and Norehan (2007) [6, 7, 16] resulted in negative impacts upon the correlation of husbands' income and women's participation in the working industry.

Ethnicity, like other cultural terms, is central to social identity[19]. It is related to races or large groups of people who usually share similar customs, religions or origins. Thus, different ethnicities symbolize the principle of life, and different customs can distinguish women's characters and the way of life[19]. [20] highlighted that the influence of race and ethnicity on mothers' propensity to enter the labor market were varied by headship status and living arrangement, whereas, findings by Widarti [21-23]suggested that ethnicity had a strong effect on labor force participation of married women in Indonesia.

An analysis by Mahoney [24] demonstrated that age of married women delegated a significant moderating variable that exhibits relationships between independent variables and labor force participation varying with age. Besides, evidence given by Spencer [19] has been consistent with the idea that advancing age by itself and made them less likely to be in the labor force. To be precise, a married woman would be more likely to work at a younger age [25]. A research done by Faridi et al [17] found that women's labor force participation is highly influenced by their age and their responses were varied by different age groups. Most studies show that at a certain age, women tend to be in the labor market or go out of the labor market. However, not all studies support this finding. Euwals, Knoef, and Vuuren [24, 26, 27] presumed that the women's 'motherhood dip' around the period of 30s is without a doubt clarified by presence of their kids. It is, be that as it may, surprising that the age profile starts to diminish at 40. Complementarity of relaxation time with an older counterpart could be viewed as a clarification for the early retirement which moderately occurrs among women. Additionally, empirical results indicated that women's age has a negative relationship with their involvement in labor force.

Education shows a positive outcome on the choice to partake in the labor market due to two reasons. In the first place, on the off chance that education is considered as an investment in human capital, at that point the individual involved needs to work to recoup the expense of education. The following explanation is, if education is considered as a consumption activity, the individual included will start to work because of higher earning potential since the chance of not working is higher [20, 28, 29]. The distinctions in the level of education among women likewise give various impacts on their involvement in the labor force. Although the pass to work could be all the more effectively acquired, married women would rely upon different variables, for example, the education and salary of the spouse, just as the children's age [30, 31].

Locality of household (either in urban or rural) significantly affects the labor force participation of women. Ali Khan and Khan [32] expressed that rural women in Pakistan were bound to take part in economic activities compared to their urban counterparts. The poor financial conditions, bigger family size of rural families, and the overall condition to deal with homesteads may be the primary reasons. Other than that, Ntuli [5, 33] revealed that women's involvement in the South African labor market was positively connected with urban living arrangement. Meanwhile in Malaysia, urbanization rates indicated positive and noteworthy impacts on women's labor participation. [7] discovered that the likelihood of women's participation is essentially higher for those who live in urban zones where chances for work are more prominent contrasted with rural regions of the country.

Father's education also gives a positive and significant association with women who work in the labor force. Chaudhry and Jabeen [34] proposed that father's education level has a critical impact on women's involvement where they found that father's low education level negatively affects women's involvement while when the level of father's education expanded, the pace of women's involvement expanded too. Notwithstanding, Faridi et al. [17] found that the women's fathers' level of education is not necessary for the decision on employment.

Educated mother is more likely to participate in the labor force[31, 34]. However, for those who consider acquiring the knowledge for consumption, education is a must to get the knowledge and better lifestyle. As a result, employment is not the main goal after graduation[15, 16]. In this situation, the level of maternal education does not affect the status of employment among daughters. Thus, it is found that the education level of mothers of women is not necessary for employment decisions..

Husband's potential earnings with higher levels of education might allow the wife the option of not participating in the labor market (Diah, 1998). Moreover, Euwals *et al.* (2007) also agreed that when the partner undergoes their tertiary education, the probability of their participation decreases. Ali Khan and Khan [32, 35] likewise found that the spouse's background of education essentially influences the likelihood of women working. Ali Khan and Khan [32, 35] found that women with jobless spouses and a husband's low amount of pay are bound to be engaged with economic activities. This is on the grounds that; the labor force participation among women has been adversely identified with the pay level of their spouses.

In their analysis, Hotchkiss, Pitts, and Walker [36] concluded that women appeared to react judiciously to the expenses and advantages related to the choice to leave the labor market after delivering a child. Mahoney expressed that the birth of kids puts a premium upon the presence of a wife at home and the mother who keeps on working. To the women who decide to work, they would have solid emotions that such employment adds to their personal and family's financial assistance. Women with numerous or little kids around may gain less profit by their level of education, which one could credit to the way that they would even now need to expect obligation for their children, which could block the effect of their education level. Spencer [19] proved that the presence of three to five children rather than two or less reduces the probability for a wife to be in the labor force. However, with six or more children, she would be about equally likely to be in the labor force.

Many studies have linked the *age of children* with the participation of women in the labor market. Tienda and Glass [20]emphasized that the presence of children under six years old decreased the LFPR. Besides, children are found to deter mother's labor force participation; not only if the children have been four or younger, but also if they are between ages five and thirteen years old because they still need attention and are immature[33]. In Indonesia, Diah [1, 37]clarified women who are raising kids, especially those under five years of age, had a critical negative effect on their labor force participation.

As indicated by Ejaz [26, 33], a bigger number of individuals in a family would prompt a higher burden for the women individuals as they would be associated with household responsibilities, for example, doing the laundry, cooking as well as taking care of the whole family. In addition, Euwals et al. [36] found that their involvement would escalate once their youngest child starts attending their primary education and it rises by and by when the kid starts attending secondary education.

In addition, high-speed *Internet access* could also boost the involvement of women in the labor market ([11, 38-40]. Other than being an increasingly gainful employee at the working environment, high accessibility to the web may permit women to work from home or any other possible locations conveniently. With the high access to the web, time can be spared, expenses and commuting to places can be diminished, while helping employers to control, and frequently lessen the expense of permanent office space. Be that as it may, a few conditions do not seem to give a positive effect on users including poor internet facilities, lack of power supply and significant expense of computer-related gears and media transmission network, and expanding issues in improving the availability of the internet connectivity [10, 18, 41]. It is accepted that an adequate degree of ICT facilities and high access to the web expected are pivotal variables that could impact women's involvement in the labor force market [21].

Factors associated to child care

Generally, women accomplish more tasks at home compared to men [17, 37]. Along these lines, to work, a parent ought to get guardianship of their children that are proper to their requirements. This is due to the fact that men assume more responsibilities as breadwinners [6, 7] while the domestic tasks of the family, for example, cleaning, washing, and cooking, are normally connected with women's work albeit both spouses are working. For married women with children, they have an extra weight of child care [9] where they by and large show lower involvement rates than women without children. In addition, the presence of younger children would also contribute towards a negative and significant impact on the hours worked.

The availability of child care is recognized as one of the most significant preconditions for married women's involvement in the labor market. As there are various facilities provided in urban, suburban, and rural areas, the accessibility of child care services is likewise identified by the location of their residence. Comparable to this, a study by Herbst and Barnow [6, 27, 33, 36] suggested that women's labor supply was sensitive to the geographic supply of child care. Rita [42]found that the most frequently given reasons by Malaysian women for not working are identified with the home and family. Furthermore, Norehan et al. [6] expressed that the choice to partake in the workforce likewise relies upon the accessibility of the guardianship of their kids, particularly those who are below six years old.

With regard to the *costs of child care services*, little kids have a solid positive effect on expenses contrasted with more grown-up kids and this expense is higher in the urban inhabitant. The estimation result showed that the expense of paid care had a slight negative impact on labor supply, however showed more prominent negative consequences for paid care utilization. In addition, young mothers require more exertion than experienced mothers to raise their first child. The significantly huge negative estimations for newborn children proposed that nursing newly-conceived children had been costly and tedious [22]. Du and Dong [14, 16, 35] expressed that the increased expenses on caregivers would uniquely diminish mothers' work hour supply. Given that the wages for sitters and guardians are significantly associated with the cost of a particular locality of child care administrations, the exacerbating of child care affordability has turned into a significant hurdle to urban mothers' involvement in the labor market.

RESEARCH METHODOLOGY

In order to examine the labor supply decision of educated married women's participation in the Malaysian labor force and to what extent it can be associated with child care arrangement, a sequential explanatory mixed-method approach was adopted. The sequential mixed methods approach used information from the first sample to draw the second. The design was utilized to improve, supplement, and in some circumstances, follow up on unexpected quantitative findings. The plan is utilized to improve, supplement, and in some circumstances, follow up on surprising quantitative findings. The emphasis is on deciphering and clarifying connections among variables, guided by a specific hypothesis. In this manner, the supplemental dataset is gathered previously or after a dominant data type in a particular study[2, 20].

Based on the statistics from the Labor Force Survey Report for Malaysia in 2018, there are 9.7 million women at the working-age group in Malaysia. As this study described the decision to work or not to work by married women with tertiary education background, the population used was married women with education up to the tertiary level. Women respondents in the Tracer Study done by the Ministry of Higher Education were selected because this is the best method of getting respondents from various backgrounds. Based on the population numbers and confidence interval of 0.95, stratified sampling was computed by the level of education.

In order to represent the real number of educated married women in Malaysia with more than 1,000,000 people, the number of respondents should about 384[8]. Therefore, at least 384 educated married women as respondents must be obtained as a sample survey. For the first phase, the data were collected *via* an online survey. Meanwhile, a binomial logistic regression was used to analyze the factors that influenced them to get involved in the labor market. In this manner, a model was intended to decide whether the presence of children made differences. Based on the findings of this regression analysis, instruments for qualitative data collection were constructed.

In the second part of the research, a qualitative study was carried out to support the findings of the quantitative study. More accentuation was given to the issue of child care arrangement on the grounds that the presence of kids in each family was recognized to influence the involvement of educated women in the labor force. The qualitative parts expected to unlock the question of how child care arrangement led to labor supply decisions among educated married women with children. In order to discover the challenges faced by educated mothers with the presence of children, a semi-structured interview was organized with some married women to explore the real problem related to childcare issues.

As this study discovered that the variable *children aged less than six years old* was found to be significant with educated married women's participation in the labor force, the interviews were centered distinctly to the individuals who met these attributes. Therefore, the utilization of convenience sampling was used. Since the variable *residential location* was found to be significant with women's participation in the labor force, this study interviewed women in each division of residential locations; urban, suburban, and rural areas in Malaysia. Along these lines, in gaining the saturation of the data, interviews were conducted to at least six educated mothers who were employed and unemployed in each residential location.

A content analysis was used to depict the issues faced by Malaysian educated married women in this qualitative part. The findings were analyzed first before they were concluded thoroughly with the findings obtained from the quantitative part.

FINDING

This section discusses the two phases employed in conducting the study. For the quantitative part, responses from 419 married women collected via online survey were analyzed by using Binary Logistic Regression. Meanwhile, in the second phase, a qualitative method via interview was employed to determine the hidden reasons why mothers with children were less likely to participate in the labor force. It is believed that the discovery made by using the explanatory sequential mixed-method design provided a better understanding of the low participation rate in the labor force among educated married women in Malaysia.

Finding for Quantitative part

From 419 educated married women with children, 349 were working married women (83.3 percent) and 70 were non-working married women (16.7 percent). Respondents from Selangor were the highest with 39.1 percent whereas respondents from other states were about 0.8 - 10.0 percent of the total respondents.

The full model that contains all predictors was statistically significant, χ^2 (16, N=419) = 61.197, p < 0.001, showing that the model had the option to recognize respondents who decided to take part in labor force against the individuals who decided not to take part. Subsequently, a significant value of χ^2 = 61.197 with degrees of freedom at 16. The non-significant value of the Hosmer and Lemeshow Test (p = 0.293) and significant Omnibus test (p = 0.000) demonstrated great execution of the model. Overall, the model itself clarifies between 13.6 percent (Cox and Snell R2) and 22.9 percent (Nagelkerke R2) of the variance in deciding to get involved in labor force. The classification table shows that out of the 349 educated women who decided to work, 343 were grouped effectively. On the other hand, out of the 70 educated women who decided not to work, 10 were in the right group.

In overall, the model effectively characterized 84.2 percent (Working = 98.3 percent, and Not working = 14.3 percent) of cases, which had been higher than its gauge of 80.5 percent, prompting great model execution. Since the findings of this

quantitative section only focused on which ones are significant variables based on pvalues, other related information is displayed in Table 1.

Table 8

	Coefficient	S.E.	P-value	Odd ratio
Ethnic	1.971	1.048	.060	7.180
Urban			.007	
Sub-urban	-1.075	.416	.010	.341
Rural	-1.474	.477	.002	.229
Women Age group	-1.065	.458	.020	.345
Father Education	.596	.351	.089	1.815
Mother Education	469	.435	.280	.626
Women Edu (Master, PhD)			.013	
Women Edu (Degree)	-1.051	.399	.008	.349
Women Edu (Cert, Diploma)	-1.461	.554	.008	.232
Access to Internet	.717	.722	.321	2.048
Have Other Resources	.266	.294	.366	1.305
Husband Education	1.301	.576	.024	3.672
Husb_Inc >RM2,000			.012	
Husb_Inc RM2,001-4,000	559	.453	.217	.572
Husb_Inc RM4,001-6,000	-1.175	.526	.025	.309
Husb_Inc < RM6,000	-1.656	.552	.003	.191
No. of children	303	.370	.413	.739
Child below_6years	-1.470	.718	.041	.230
Constant	4.801	1.196	.000	121.689

Association of independent variables with educated mothers' participation in labor market

In Table 1, variables of *ethnic* (P = .060), *father's education* (P = 0.089), *mother education* (P=0.280), *access to internet* (P=0.321) and *have other resources than income* (P = .366) were not significant. This means that the participation of educated mothers with children was not influenced by these five variables.

The variables of *residential location* (P = .007), women age group (P=0.020), women's education (P = .013), husband's education (P = .024) and Husband income (P=0.012) were significant.

Although the variable of *husband's income* was significant and influenced educated married women to participate in the labor market, there is a difference in which the level of income was significant. In this model, those with husband's monthly income RM4,001 – RM6,000 and more than RM6,000 were significant.

For the variable of *number of children*, the P-Value = .413, which is more than .05, showed an insignificant result while for the variable *having children below six years old*, the P-Value, which was .041 (less than .05), showed that it was significant and contributed to the model.

Finding for Qualitative part

This approached was conducted in order to discover a genuine issue faced by educated mothers with regard to their child care management. It sparked the inspiration for the current study to increase better comprehension of the significance of child care management to women where they needed to decide between getting involved in the labor market or withdraw from it.

In qualitative research, Morse (1994) suggests at least six interviews and Creswell (1998) recommends 5-25 interviews need to be done for sampling. However, it still has to refer to the idea of the required number of participants should depend on when saturation of data is reached. For the present study, three respondents were met at each residential area (urban, suburban and rural areas respectively). Five out of nine educated women with young kids were likewise working full-time while the other four respondents were unemployed. As expressed in the prerequisites set for the respondents' characteristics, all the respondents, aged somewhere in the range of 34 and 44 years and lived in a few states in Malaysia, had at least three kids under the age of six. Five out of nine respondents had three kids, and three had four kids while one respondent had seven kids.

Theme 1: The Availability of child care centers

The respondents who were chosen from the three distinct residential areas (urban, suburban and rural areas) did not confront any issue relating to the guardianship of their children. With regard to the accessibility of child care centers, nine educated mothers were interviewed, only one of them expressed the issue concerning access to child care centers. Eight other educated mothers were not facing the issue, regardless of their residential areas. This implies; regardless of whether as formal and enlisted (for example, nursery and kindergarten), or as casual, (for example, a babysitter), any form of child care center is accessible by educated mothers in Malaysia. Thus, easiness of access to child care services will influence women's labor supply and their employment rate.

Theme 2: Child care costs

All respondents reliably featured that the expense of child care service was costly in spite of the fact that there was a respondent who lived in a rural area, where moderately the expense of child care probably is less expensive. Consequently, a few respondents felt that they could not stand to hold up under the expense, particularly when the number of children in the family increases.

In addition, a few respondents had decided to employ a domestic helper and some felt that they could spare family costs by dealing with their children. By deciding not to work, opportunity expenses can be diminished as compared to the event that they worked. This results are consistent with Wetzels' (2005), Kimmel's (1998), Connelly's (1992), and Rita's (1979) [11, 15, 35, 43]findings in their respective study. In addition, these qualitative findings prove that the issue of high child care costs has troubled the family, particularly those with many children. Despite the fact that child care subsidy is given by the government to the individuals who are qualified, the qualification is still restricted.

Theme 3: Safety of children in a child care center

Based on the interviews conducted, the issue of children's safety is the cause of worry among the parents who send their children to childcare centers. It additionally dished out more when they responded to inquiries concerning the difficulties looked by them in thinking about their children. This concern was rarely talked about in past research, particularly in Malaysia; especially on how these factors had been identified with the involvement of educated mothers in the labor market.

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A significant result found from the present study was that there was a high inclination of worry among parents over the security of their kids as they ought to be cared for by others. Despite their personal anxiety, a concern was found with the information from other individuals that were represented by the media. Hence, to stay away from the tendency of neglected child security, numerous mothers decide to discontinue their employment[25].

Discussion on finding of explanatory sequential mixed methods approach

The first research objective from the quantitative part examined the factors that influenced educated married women, while the second research objective ascertained the determinants of educated married women with children for their participation in the labor force. Six of the twelve variables (*residential location, women's age group, women's education, husband's education, husband's income, have children aged less than six years old*) proved a significant result for the participation of married women in the labor market. These variables displayed a significant relationship with the participation in the labor force for all educated women, including those with children.

Findings from the second research objective, which was from the qualitative part, found that the issue of inability to overcome the problem to get child care centers that meet their needs, the cost of care, which they cannot afford to pay makes women to be overly-occupied as having two roles have reduced their ability to work. Moreover, the content analysis found that the *safety aspects of the child* were related to the participation of educated mothers in the Malaysian labor force.

The main findings of this study were the factors that determine labor supply decision made by educated married women in the labor force. For educated women who are working, they imply the possibility of not working when faced with problems related to child care. Due to the difficulty of balancing the needs of work and household management or in other words, achieving the **work-life balance**, most women are forced to make choices and face the opportunity cost between their work and household activities.

CONCLUSION

The decision among married women either to work or not work is clarified by the Theory of Allocation of Time which recognizes that women do not only juggle between leisure and labor hours, yet between recreation, work, and home productions of goods and services. In order to appreciate the dual role of women, support from all parties is required to achieve a work-life balance, the equilibrium between career and family life. Having a child and the child's age are variables associated with child care arrangements. If issues related to the management of children cannot be resolved, the opportunity cost for this situation is a mother's career because a father normally plays the role of the breadwinner for the family. Therefore, the availability of child care institutions that are accessible, affordable and can be believed is the most important support system to urge educated married women to get involved in the labor market [15, 31]).

Furthermore, the opportunity for educated married women to harmonize the needs of careers and their families should be emphasized. Flexible working hours and flexible working arrangements are expected to help women to achieve their work-life balance (Agarwal, 2018). However, the implementation of both systems should be expanded and not be restricted by inadequate facilities. Besides, it has been understood that promoting gender equality and empowering women is not something easy to do.

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