

ORIGINAL RESEARCH

New Aspects of Being an Adolescent Mother: Comparison of Psychosocial Features Between Adult and Adolescent Mothers

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Abstract

Objective: Becoming a mother during the adolescence can cause additional burdens and adversities which might put these individuals at higher risk for psychosocial disturbances. Several studies have reported higher depression rates and worse parenting skills for adolescent mothers but results are contradicting and limited. In accordance with these issues, we aimed to compare perceived social support, self-confidence in child-bearing, mother-infant bonding profiles and depressive symptoms of adolescent mothers with their counter-parts who got pregnant and gave birth in their medically accepted reproductive stage (between ages of 25 – 30).

Methods: Our case group consisted of 47 adolescent mothers who were to our hospital due to pregnancy under the age of 18 and were in the time period of 12 to 18 months after giving birth; whereas control group of the study included total of 53 mothers who got pregnant between ages of 25 – 30 and were in the time period of 12 to 18 months after giving birth. Both groups were evaluated using Beck Depression Inventory (BDI), Multidimensional Scale of Perceived Social Support (MSPSS), Pharis Self-Confidence Scale (PSCS) and Mother-to-Infant Bonding Scale (MTIBS) and scores were compared between groups.

Results: Adolescent mothers were generally living with family elders ($p=0.001$), under-educated ($p<0.001$), unemployed ($p<0.001$) and mostly didn't receive any physical support for child-bearing ($p=0.011$). They also had lower MSPSS-Intimate ($p<0.001$) and MSPSS-Total ($p<0.001$) scores; whereas adult mothers scored lower on PSCS ($p=0.001$) and higher on BDI ($p<0.001$) and MTIBS ($p<0.001$). There was also a positive correlation between BDI and MTIBS ($p<0.001$). Furthermore, linear regression models showed that, education level difference was accountable for significant portions of differences in MSPSS-Intimate ($p=0.013$), MSPSS-Total ($p=0.016$), MTIBS ($p=0.002$) and BDI ($p=0.003$) scores; whereas occupational status was only accountable for significant portion of differences in PSCS scores ($p=0.019$).

Conclusion: Majority of the adolescent mothers was less educated and unemployed; but had better mother-to-infant bonding profiles compared to their counterparts. Regression analyses showed that lower depression scores were accountable for this better mother-to-infant bonding profile among adolescent mothers. In addition, higher educated and employed adult mothers had lower maternal self-confidence in child bearing, worse mother-to-infant bonding profiles and higher depression scores. This might reflect possible protective role of more communal family structure and cultural features as well as negative effect of additional distress which working adult mothers may experience in their daily lives. Further studies with larger sample size and diverse cultural backgrounds are needed to better understand the interaction between various psychosocial features.

Keywords: Adolescent Mother, Depression, Maternal Bonding, Maternal Self-Confidence

INTRODUCTION

Adolescence is a phase in which connection with the family is maintained while tasks like construction of self-identity, completion of individualization and achievement of emotional autonomy are gradually accomplished (1).

On the other hand, transition to motherhood brings along serious psychological, developmental and biological changes in the life of a woman. Adolescent mothers who had to experience transition to motherhood relatively early in their lives become obliged to merge their roles (adolescent, daughter, student, partner) with their mother roles in addition to their tasks of adolescence. These additional requirements constitute psychological and sociological burdens on the teenage girls (2).

In the current legal framework of Turkish justice system; adolescents older than 17 years can get married under their parents' or legal guardians' consent, adolescents younger than 17 but older than 16

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Citation: Besenek M, Gurlek B. New Aspects of Being an Adolescent Mother: Comparison of Psychosocial Features Between Adult and Adolescent Mothers. Psychiatry and Behavioral Sciences 2021;11(3):209-218.

Doi: 10.5455/PBS.20210528045819

Received: May 28, 2021

Accepted: Jul 07, 2021

years can get married under the legal court's approval and adolescents younger than 16 years cannot get married (3). However, in the community practice this may not be the usual scenario and especially in the rural areas, adolescents in every age group might be married in the religious methods which might result in teenage pregnancies. Women who give birth at relatively younger ages might experience problems regarding maternal skills and child-bearing. It was found that, these adolescent mothers were exhibiting less sensitive and structuring and more intrusive and hostile mothering styles compared to women who became mothers in the older ages (4). Negative mothering styles might cause mother-infant bonding problems by disrupting mother-infant relationship. Parallel with this, adolescent mothers might perceive their child-bearing skills as inadequate. Individuals who became mothers at very early ages often report being subjected to criticism about their child-bearing skills and unsolicited advice about raising a child (5). These mothers generally have to drop out of school due to their new responsibilities taking up all their spare time, thus they are less likely to acquire a profession. Socio-economical disadvantages, which are frequently seen among adolescent mothers are both the cause of early pregnancies and the result of disruption of their educational lives (6,7). Studies show that adolescent mothers experience more intense daily life problems, and also they have less social support in order to cope with these problems (8). All of these factors negatively affect psychological well-being and parenting skills of adolescent mothers; in fact research shows that, these individuals have higher rates of stigmatization, social isolation, post-partum depression, domestic violence and alcohol/substance use (9–11).

However, most of the research conducted in this field had compared the adolescent mothers with their peers in order to determine the psychosocial disturbances (such as depression) (12). Furthermore, studies with a control group which investigate more specific aspects such as child-bearing skills, social support and mother-infant bonding are limited (13–15). In addition, evidence from “developing” countries is scarce in this aspect; majority of the findings comes from studies done in “developed” countries and they might not represent the general profile of the adolescent mothers in the world. In accordance with these issues, we aimed to compare perceived social support, self-confidence in child-bearing, mother-infant bonding profiles and depressive

symptoms of adolescent mothers with their counterparts who got pregnant and gave birth in their medically accepted reproductive stage (between ages of 25 – 30). We hypothesized that adolescent mothers would have worse perceived social support, lower self-confidence in child-bearing, worse mother-infant bonding profiles and more severe depressive symptoms compared to mothers who gave birth in the medically accepted reproductive age. By defining these possible problem areas which adolescent mothers may encounter, we believe that clinicians can better understand the mental health requirements of these individuals and plan more adequate interventions both in clinical settings and nation-wide strategies.

METHOD

Study Design

Our case group consisted of adolescent mothers who were admitted to RTE Obstetrics and Gynecology Department of RTE University Training and Research Hospital due to pregnancy under the age of 18 and who are in the time period of 12 to 18 months after giving birth. Control group of the study included mothers who got pregnant between ages of 25 – 30 and who are in the time period of 12 to 18 months after giving birth. All of the participants were looked-up from the hospital's recording system and contacted for a face-to-face interview between April 2021 and May 2021. Inclusion criteria were decided as giving birth to a healthy and living infant, not having any current psychiatric treatment, being legally married, being in the defined age span for each group and giving their informed consent. Mothers of children with birth anomalies, who are currently under psychiatric treatment, who are currently single and who did not give their informed consent were excluded from the study. The G-Power analysis program version 3.1 was used to calculate the sample size (16). Type I Error 0.05, Type II Error: 0.10, 1- β (power): 90% of the sample size was calculated as 42 for each group. Initially 107 adolescent mothers were contacted and 43 of them were excluded because they did not give their informed consent and 17 of them were excluded because they were out of the defined age span of the study. Total of 47 adolescent mothers were included in the case group and 53 mothers were included in the control group. Informed consent was obtained from both the adolescent and her parent/legal guardian prior to the

study. The study was conducted in accordance with the ethical guidelines, including the World Medical Association (1975) Declaration of Helsinki 2008, and the legal requirements of the Ethics Committee of the institution it was conducted in (approval no: 2020/226). All of the participants were administered the following tools in the clinical interviews:

Sociodemographic and Clinical Data Form: This form, which was produced by the researchers, examines the age of the mother and the child, date of birth, number of pregnancies/deliveries, height, weight, gender of the child, pregnancy/delivery complications, delivery week, time of birth, method of delivery, marital status, support for child care, place of residency, whom they are living with, education level, occupational status and previous psychiatric treatments.

Beck Depression Inventory (BDI): Beck and colleagues developed this self-report inventory in order to quantitatively evaluate perceived depressive symptomatology and vegetative, emotional, cognitive and motivational disturbances (17). Each item is scored between 0-3 and higher scores indicate more severe depressive mood. Validity and reliability study of BDI among Turkish sample was done by Hisli (18).

Multidimensional Scale of Perceived Social Support (MSPSS): This short scale was developed by Zimet and colleagues and it subjectively evaluates perceived social support from family members (MSPSS-Family), peers/friends (MSPSS-Peer) and significant other (MSPSS-Intimate) (19). It includes total of 12 items with 7 point type scoring and higher scores indicate better social support. MSPSS was found to be a valid and reliable scale in Turkish sample in a study done by Eker and colleagues (20).

Mother-to Infant Bonding Scale (MTIBS): This scale was designed to determine the mothers' feelings towards their infants and it can be administered from the first day of the birth (21). It consists of total of 8 items with 4 point likert type scoring and higher scores show disturbances in the mother-infant bonding profile. Validity and reliability study of MTIBS among Turkish mothers were done by Karakulak (22).

Pharis Self-Confidence Scale (PSCS): PSCS is a 13 item (5 point likert type) self-report scale which evaluates the confidence level of mothers regarding daily child-bearing activities (23). Higher total scores indicate higher confidence levels. Turkish form of PSCS was found as a valid and reliable scale in the study done by Çalışır (24).

Statistical Analysis

The data were analyzed using the Social Sciences software version 21.0 (25). Kolmogorov-Smirnov test was used to check whether the continuous data were normally distributed. Quantitative data were presented as mean (standard deviation) for parametric and median (inter-quartile range) for non-parametric data while categorical data were presented as frequency (percentage). In order to compare continuous data between groups; Independent T-test was used for parametric and Mann Whitney-U (MWU) test was used for non-parametric data. Categorical data were analyzed using Chi-Square or Fisher's Exact test. Evaluation of the correlation between continuous data was done by Pearson Correlation test. Pearson Correlation coefficient (r) values between ± 0.50 and ± 1 are considered as a "high degree (strong correlation)", between ± 0.30 and ± 0.49 are considered as a "moderate degree (medium correlation)" and between ± 0.01 and ± 0.29 are considered as a "low degree (small correlation)". Effects of statistically different clinical/sociodemographic variables on the continuous data (scale scores) were evaluated using Linear Regression models. The value of $p < 0.05$ was accepted as statistically significant.

RESULTS

Mean age of case group was 18.72 (± 0.85) years and control group was 30.58 (± 2.02) years with an expected statistically significant difference between groups due to the design of the study ($p < 0.001$, Independent T-test). Height, weight and delivery week values of both groups were similar; whereas number of pregnancies ($p = 0.012$, MWU test) and deliveries ($p = 0.001$, MWU test) were higher for control group as anticipated (Table 1). Our control group had higher rates of pregnancy complications ($p = 0.014$, Fisher's Exact test) and c-sections [$\chi^2(1, N=100) = 18.301$, $p < 0.001$]. Our case group mostly did not report any physical support for child-bearing (57.4% vs 32.1%) [$\chi^2(1, N=100) = 6.508$, $p = 0.011$], were generally living together with family elders and their partners (29.8% vs 5.7%) [$\chi^2(1, N=100) = 10.277$, $p = 0.001$], mostly had lower education levels (91.5% vs 3.8%) [$\chi^2(1, N=100) = 77.438$, $p < 0.001$] and were frequently unemployed (97.9% vs 26.4%) [$\chi^2(1, N=100) = 52.997$, $p < 0.001$]. Other clinical and sociodemographic features of both groups are summarized on Table 2.

Regarding the psychiatric and psychological scales; our case group reported lower social support specifically

from their partners (MSPSS-Intimate) ($p < 0.001$, MWU test) and in general (MSPSS-Total) ($p < 0.001$, MWU test). However our control group had lower self-confidence regarding child bearing (PSCS) ($p = 0.001$, MWU test), worse mother-to-infant bonding profiles (MTIBS) ($p < 0.001$, MWU test) and higher depression scores (BDI) ($p < 0.001$, MWU test) compared to case group (Table 2).

In the correlation analyses conducted among all participants, there were correlations between subscales of MSPSS as expected and they are reported on Table 3. In addition there was a low degree correlation between worse social support from partner (lower MSPSS-Intimate scores) and better mother-to-infant

bonding profiles (lower MTIBS scores) ($r = 0.221$, $p = 0.027$, Pearson correlation). Also higher depression (BDI) scores were moderately correlated with worse mother-to-infant bonding profiles (higher MTIBS scores) ($r = 0.421$, $p < 0.001$, Pearson correlation) (Table 3). Furthermore linear regression models showed that, education level difference was accountable for significant portions of differences in MSPSS-Intimate ($p = 0.013$), MSPSS-Total ($p = 0.016$), MTIBS ($p = 0.002$) and BDI ($p = 0.003$) scores; whereas occupational status was only accountable for significant portion of differences in PSCS scores ($p = 0.019$). All of the regression models are summarized on Table 4.

Table 1. Comparison of physical and psychosocial features between adolescent and adult mothers.

	Mean (\pm Standard Deviation)		F	t	p*
	Case (n=47)	Control (n=53)			
Age (Years)	18.72 (± 0.85)	30.58 (± 2.02)	28.121	-37.345	<0.001
Height (cm)	163.67 (± 5.43)	163.40 (± 5.38)	0.133	0.243	0.808
Weight (kg)	64.77 (± 11.00)	66.06 (± 12.42)	0.405	-0.547	0.585
Delivery Week	38.3 (± 1.91)	38.1 (± 1.69)	1.124	0.619	0.538
Median (Interquartile Range)					
	Case (n=47)	Control (n=53)	Z	p†	
Number of Pregnancy	1 (0)	1 (1)	-2.504	0.012	
Number of Delivery	1 (0)	1 (1)	-3.206	0.001	
MSPSS-Family	26 (7)	27 (4)	-0.919	0.358	
MSPSS-Peer	21 (21)	24 (6)	-1.886	0.059	
MSPSS-Intimate	10 (13)	19 (11)	-4.903	<0.001	
MSPSS-Total	58 (27)	69 (15)	-4.676	<0.001	
PSCS	63 (4)	59 (6)	-3.464	0.001	
MTIBS	0 (1)	3 (5)	-5.824	<0.001	
BDI	5 (8)	11 (10)	-4.030	<0.001	

MSPSS, Multidimensional Scale of Perceived Social Support; PSCS, Pharis Self-Confidence Scale; MTIBS, Mother-To-Infant Bonding Scale; BDI, Beck Depression Inventory

* Independent T-Test, statistically significant p values are written in bold.

† Mann-Whitney-U Test, statistically significant p values are written in bold.

Table 2. Comparison of clinical and psychosocial features of adolescent and adult mothers.

	Number (Percentage)		χ^2	p [†]
	Case (n=47)	Control (n=53)		
Gender of the Baby				
<i>Male</i>	23 (48.9%)	24 (45.3%)	0.133	0.715
<i>Female</i>	24 (51.1%)	29 (56.7%)		
Pregnancy Complication				
<i>Present</i>	0	7 (13.2%)		0.014*
<i>Not Present</i>	47 (100.0%)	46 (86.8%)		
Delivery Complication				
<i>Present</i>	0	4 (7.5%)		0.120*
<i>Not Present</i>	47 (100.0%)	49 (92.5%)		
Time of Birth				
<i>Preterm</i>	11 (23.4%)	7 (13.2%)	1.755	0.185
<i>Term</i>	36 (76.6%)	46 (86.8%)		
Method of Delivery				
<i>Vaginal</i>	25 (53.2%)	7 (13.2%)	18.301	<0.001
<i>C-Section</i>	22 (46.8%)	46 (86.8%)		
Incubator Need				
<i>Needed</i>	8 (17.0%)	7 (13.2%)	0.284	0.594
<i>Not Needed</i>	39 (83.0%)	46 (86.8%)		
Marital Status				
<i>Married</i>	47 (100.0%)	52 (98.1%)		1.000*
<i>Divorced</i>	0	1 (1.9%)		
Support for Child Care				
<i>Alone</i>	27 (57.4%)	17 (32.1%)	6.508	0.011
<i>Supported</i>	20 (42.6%)	36 (67.9%)		
Place of Residency				
<i>High-population Area</i>	27 (57.4%)	31 (58.5%)	0.011	0.916
<i>Low-population Area</i>	20 (42.6%)	22 (41.5%)		
Living With				
<i>Partner</i>	33 (70.2%)	50 (94.3%)	10.277	0.001
<i>Family Elders and Partner</i>	14 (29.8%)	3 (5.7%)		
Education Level				
<i>Primary/High School</i>	43 (91.5%)	2 (3.8%)	77.438	<0.001
<i>University/College Degree</i>	4 (8.5%)	51 (96.2%)		
Occupational Status				
<i>Never Worked/In the Past</i>	46 (97.9%)	14 (26.4%)	52.997	<0.001
<i>Still Working</i>	1 (2.1%)	39 (73.6%)		
Psychiatric Referral				
<i>Present</i>	8 (17.0%)	8 (14%)	0.069	0.793
<i>Not-Present</i>	39 (83.0%)	45 (86%)		
Psychiatric Medication				
<i>Present</i>	1 (2.1%)	0		0.470*
<i>Not-Present</i>	46 (97.9%)	53 (100.0%)		

[†] Chi-Square Test, statistically significant p values are written in bold.

* Fisher's Exact Chi-Square Test, statistically significant p values are written in bold.

Table 3. Correlations between psychosocial scale scores/ time since birth.

Correlations*		MSPSS Family	MSPSS Peer	MSPSS Intimate	MSPSS Total	PSCS	MTIBS	BDI
MSPSS Peer	r	0,286						
	p	0,004						
MSPSS Intimate	r	0,281	0,539					
	p	0,005	<0,001					
MSPSS Total	r	0,573	0,834	0,852				
	p	<0,001	<0,001	<0,001				
PSCS	r	0,176	0,089	-0,008	0,090			
	p	0,079	0,380	0,941	0,375			
MTIBS	r	0,005	0,094	0,221	0,159	-0,260		
	p	0,962	0,354	0,027	0,114	0,009		
BDI	r	-0,090	0,048	0,097	0,046	-0,122	0,421	
	p	0,373	0,637	0,338	0,649	0,228	<0,001	
Time Since Birth	r	-0,014	0,041	0,151	0,093	-0,014	-0,027	-0,102
	p	0,891	0,684	0,133	0,356	0,890	0,790	0,313

MSPSS, Multidimensional Scale of Perceived Social Support; PSCS, Pharis Self-Confidence Scale; MTIBS, Mother-To-Infant Bonding Scale; BDI, Beck Depression Inventory; r, Pearson Correlation Coefficient

* Statistically significant p values are written in bold.

Table 4. Regression analysis models of statistically different psychosocial scales.

Dependent Variable	Independent Variables	β	Std. Error	t	p*	
MSPSS Intimate	Education Level	0.312	1.997	2.543	0.013	
	Occupational Status	0.191	2.001	1.575	0.118	
	Child Care Support	-0.078	1.563	-0.815	0.417	
	Whom She is Living With	-0.122	2.087	-1.257	0.212	R ² = 0.220
	Constant			2.036	0.045	F = 7.976 n = 100
MSPSS Total	Education Level	0.311	4.016	2.444	0.016	
	Occupational Status	0.142	4.025	1.132	0.260	
	Child Care Support	-0.010	3.143	-0.099	0.921	
	Whom She is Living With	-0.074	4.196	-0.736	0.463	R ² = 0.164
	Constant			5.281	<0.001	F = 5.865 n = 100
PSCS	Education Level	-0.182	1.139	-1.414	0.161	
	Occupational Status	-0.303	1.141	-2.390	0.019	
	Child Care Support	0.008	0.891	0.081	0.935	
	Whom She is Living With	-0.118	1.190	-1.167	0.246	R ² = 0.145
	Constant			28.278	<0.001	F = 5.195 n = 100
MTIBS	Education Level	0.393	0.885	3.264	0.002	
	Occupational Status	0.139	0.887	1.165	0.247	
	Child Care Support	0.118	0.693	1.259	0.211	
	Whom She is Living With	0.039	0.925	0.407	0.685	R ² = 0.249
	Constant			-2.642	0.010	F = 9.205 n = 100
BDI	Education Level	0.393	1.857	3.000	0.003	
	Occupational Status	0.024	1.861	0.183	0.855	
	Child Care Support	-0.091	1.453	-0.888	0.377	
	Whom She is Living With	0.038	1.940	0.365	0.716	R ² = 0.113
	Constant			0.429	0.669	F = 4.155 n = 100

MSPSS, Multidimensional Scale of Perceived Social Support; PSCS, Pharis Self-Confidence Scale; MTIBS, Mother-To-Infant Bonding Scale; BDI, Beck Depression Inventory

* Statistically significant p values are written in bold

DISCUSSION

In this study, we found that mothers who got pregnant under the age of 18 had lower education levels, were mostly unemployed and perceived lower social support from their partners and in general compared to mothers in reproductive stage. However, surprisingly enough, their counterparts (mothers who got pregnant in the scientifically accepted reproductive ages) had lower self-confidence regarding child bearing, worse mother-to-infant bonding and higher depression scores. Further evaluations showed that education level difference between groups was accountable for the large portion of majority of these differences, except maternal self-confidence which was affected by occupational status. In addition, there were correlations between worse social support from partner/ better mother-to-infant bonding profiles and higher depression scores/ worse mother-to-infant bonding profiles in the whole sample of the study. Regardless of their age, all new mothers become exposed to various negative factors such as overwhelming daily life tasks, fatigue, decrease of both financial and social resources, isolation and confusion (2). In this surplus of adverse environmental factors, adolescent mothers experience significantly more obstacles but they often report insufficient resources and social support (2,8). In our research we found that adolescent mothers did not receive enough support regarding child-bearing even though majority was living with family elders and they scored significantly lower in MSPSS-Total which seem to be in line with the previous literature. When we examined the subscales of MSPSS, only MSPSS-Intimate scores were significantly lower for the case group. Match and Sims highlighted that social support sources tend to change according to the age of the mother (26). Older mothers define their partners to be the major source of their emotional/ instrumental support whereas younger mothers' fundamental social support source is their own mother and this phenomenon might explain the unique statistical difference of MSPSS-Intimate scores in all of MSPSS subscales which we observed (26). Furthermore, it goes without saying that previously mentioned negative factors severely affect socioeconomic aspects of adolescent mothers' lives. Socioeconomic disadvantages are reported to be the both cause and result of teenage pregnancies and there are numerous studies reporting lower socioeconomic status among adolescent mothers compared to their counterparts (6,10). We showed that adolescent mothers who were involved in our research had lower education levels and were more likely to be

unemployed compared to the control group. Even though there are a lot more different factors contributing to the socioeconomic status of a person; these findings might reflect socioeconomic disadvantages which adolescent mothers experience.

Building efficacy and self-confidence in parenting skills is another challenging obstacle which adolescent mothers need to overcome. Adolescents have their own internal conflicts and they are less likely to be prepared for the responsibilities of parenting; so the emotional distress, which directly affects the parenting skills, is amplified for adolescent mothers.² These individuals are generally criticized about their parenting skills and receive unsolicited advice on how to raise their children (2,5). In addition, adolescents who got pregnant are more likely to have lower socioeconomic status and histories of adverse life events such as physical or sexual abuse (27). Also these adolescent mothers frequently experience isolation and loneliness which may potentially impact maternal self-confidence (28). The development of high maternal self-confidence is substantially dependent on the mother's abilities to interact with and care for her infant and it is an important early parenting attribute which is related to mother-infant bonding (29,30). Because of the previously mentioned circumstances, adolescent mothers may lack the cognitive or social-emotional resources to provide the sensitive and responsive parenting which are necessary for a healthy mother-infant bonding (31). Previous research showed that individuals who became mothers in younger ages experience more difficulties in understanding the behavioral cues of their infants, engage in less visual, auditory and tactile interactions and vocalized less during the play interaction with their babies and are significantly less likely to breast feed (13,15). In a recent study it was found that; compared to adult mothers, adolescent mothers spent more time in negative engagement and their infants spent less time in positive engagement and more time in negative engagement (14). In light of these literature findings, our results of lower self-confidence regarding child bearing and worse mother-to-infant bonding profiles of control group (adult mothers) seem to be contradicting. However, while examining these results, some other socio-cultural factors should be taken into account. It should be noted that majority of these findings comes from studies which were conducted in "developed" countries and/or societies with a western lifestyle in which individualism is more dominant over collectivism and people are more driven by individual values (32). In line with this we found that, even though

large portion of our adolescent mothers did not report getting any physical support for child-bearing, majority of them was living together with their partners and family elders which might reflect a more collective/communal family structure. There are several studies reporting that extensive support from one's family can positively influence adaptation to motherhood and improve the well-being of mother and baby (33,34). Even though adolescent mothers in our study did not report receiving physical support in child-bearing, living together with a family elder may promote a valuable opportunity for these mothers to experience effective parenting skills by observing their or their partners' mothers. This might explain higher maternal self-confidence (PSCS) scores among our case group compared to control group who predominantly live as nuclear family. Another important result of our study was the better mother-to-infant bonding profiles of adolescent mothers. Because of the tight-knit relationship between maternal self-confidence and mother-infant bonding explained by Shea et al. and Cox; better mother-to-infant bonding profiles of adolescent mothers which we found in our research can be included in the same scope (29,30).

Post-partum depression (or depression in general) is another important issue which needs to be addressed among adolescent mothers. While postpartum depression has multiple etiologies such as biological and psychosocial factors; it might be possible that previously mentioned adversities which adolescent mothers face such as overwhelming daily life tasks, fatigue, decrease of both financial and social resources, isolation and confusion might put them in a more vulnerable position for depression in general (35). Whereas Fleming et al. found that pregnant teenagers suffered depression much more frequently compared to their adult counterparts or teenagers in general; we observed lower depression scores among adolescent mothers who participated in our research (36). These results which seem conflicting with the literature at first glance, might originate from socio-cultural and familial features of the community it was conducted in. Literature findings in this field are mostly from studies which were done in "developed" countries and/or societies with a western lifestyle and should be approached in this context. It can be speculated that living with a family elder and having a somewhat intact familial support system (MSPSS-Family) might decrease the feelings of isolation and loneliness which adolescent mothers might experience thus result in a more stable mental health. Supporting our claim, Birkeland et al. reported that social isolation predicted unique variance

associated with depression level differences between adolescent and adult mothers (2). In addition Hudson et al. have shown that maternal competence was inversely related to depression among adolescent mothers (28). When we take the eastern family features (e.g., living with family elders) into account, lower depression scores and better mother-to-infant bonding profiles of adolescent mothers in our study seem to be in line with findings Hudson et al. reported (28).

Furthermore, while explaining the differences between study groups, we need to consider the difficulties working mothers may experience since majority of our control group had a job while case group did not. Also adolescent mothers we enrolled had lower educational levels which might directly translate into employment status. In our regression models, education levels affected mother-to-infant bonding profiles and depression scores while employment status affected maternal self-confidence. Especially in "developing" countries, being obliged to work and provide for the total income would surely create additional difficulties for working mothers together with their tasks as a parent. Research show that working mothers have higher stress levels due to problems and additional responsibilities at work as well as their domestic front (37). This higher stress level among working adult mothers which was emphasized in the literature, may explain the differences we observed between our groups. Additionally several studies have also reported that early parenthood can mark a positive entry into adulthood among adolescent mothers whose economic and educational opportunities are limited (38–40). Similar with these studies, our adolescent mothers also had lower education levels and unemployment; so it can be speculated that they might have positive perceptions about motherhood and it might play a protective role against negative outcomes. Despite some positive outcomes which we observed in our study; we would like to underline that teenage pregnancies and early marriages are public health problems with potential adverse effects on mental well-being and we do not endorse such practices in regard of both the adolescent and the family.

In our research, a wide-range of features regarding social support and parenting skills of mothers were evaluated and we believe this is the major strength of our study which enabled a more integrated and inclusive point of view towards understanding the demographic and psychosocial profiles of adolescent mothers. Since teenage pregnancies and adolescent motherhood are public health concerns under

the effects of multiple aspects, examining wider psychological areas and not focusing on a limited facet is the major difference of this study from the likes of it in the literature. In addition, we think the results will provide valuable contribution to the literature because studies conducted in our country regarding this area of interest are limited. However, we think that using self-report scales while examining psychosocial profiles and not performing clinical psychiatric evaluations is a major limitation of this study. In addition, recruiting the individuals from one center/limited demographic area might have restricted the study's ability to fully reflect the cultural and environmental differences. In conclusion, we found that majority of the adolescent mothers was less educated and unemployed; but they had better mother-to-infant bonding profiles because they felt less depressive. Even though lower depression/higher maternal self-confidence scores and better mother-to-infant bonding profiles are unexpected as well as gratifying for adolescent mothers; it is not possible to make assumptions about future psychosocial states of these individuals through the findings of this cross-sectional study. How many of these adolescent mothers whose education systems are interrupted will return to educational and/or business lives or in which mental state they will be through-out the foreseeable future is still mostly unclear. Furthermore we observed that educated and employed adult mothers had lower maternal self-confidence, worse mother-to-infant bonding profiles and felt more depressive. When considered from this point of view, enhancements only focusing on unemployment and lack of education among adolescent mothers seem to be insufficient for becoming a happy mother and building a health mother-infant relationship in the future. Further studies should be done in larger sample sizes and include individuals with diverse cultural backgrounds in order to fully clarify which specific psychosocial interventions should be facilitated to ensure healthier mental states and better maternal features for these individuals.

Disclosure statement: The authors declare no conflicts of interest.

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