

# OVERCOMING CIRCLE OF POVERTY? HUMAN AND SOCIAL CAPITAL-ENHANCING DIGITAL USES AMONG SINGLE MOTHERS – FINDINGS OF REPEATED CROSS-SECTIONAL STUDY 2014-2019

Sabina Lissitsa<sup>1</sup> and Svetlana Chachashvili-Bolotin<sup>2</sup>

<sup>1</sup>*Ariel University, Kiryat Hamada, Ariel, Israel*

<sup>2</sup>*Ruppin Academic Center, Emeq Hefer, Israel*

## ABSTRACT

Using data from large scale Annual Social Surveys of the CBS in Israel, the current research focused on patterns of digital inequality among Israeli mothers between 2014–2019. The main purpose of the current study was to investigate the differences within a group of single mothers according to their SES as well as differences between single and married mothers and whether these patterns are stable or changeable over time. The highest percentage of digital uses adoption was found among high SES mothers, both single and married. The most disadvantaged group was low SES married mothers. Digital inequality among mothers is best explained by social class, rather than by the difficulties and restrictions of single motherhood. Groups were consistent in their pace of digital uses adoption over time. Policymaker implementation of our specific recommendations may produce beneficial effects for promotion of Internet use among single mothers.

## KEYWORDS

Single Mothers, Digital Inequality, Internet Use for Study, Social Media, E-Government

## 1. INTRODUCTION

Economically and socially disadvantaged groups experience generational suffering due to a range of exclusion types. In Western countries, belonging to a vulnerable group (i.e., lower education, income, disability, or disadvantaged minority status) is a strong predictor of non-online access (Helsper and Reisdorf, 2016, Lissitsa and Madar, 2018). Thus, most socially excluded members of society are also the most likely to be digitally excluded (Witte and Mannon, 2010). There is ample research addressing digital exclusion of various vulnerable groups such as elderly, minorities or people with disabilities (Adkins and Sandy, 2020). However, digital inequality based on single vs. partnered motherhood and its social and economic implications have yet to be explored.

Single-mother households are increasingly common and have become a social concern in global contexts (Li, 2020). Low wages, lack of spousal and social support, limited access to resources and public services, and the burdens of raising children have made single mothers especially vulnerable (Nieuwenhuis and Maldonado, 2018). Compared to coupled-parent families, children from single mother households more often suffer from economic deprivation (Treanor, 2018), lower educational performance (de Lange and Dronkers, 2018), and greater levels of behavioural difficulties. Considering these difficulties, there is a growing interest in whether and how digital technologies, tools, and services can make a difference to single mothers' social inclusion and welfare.

Previous research on single mother families has largely focused on poverty, whereas much less is known about single parent families who are above the poverty threshold. For these mothers, middle and high social class economic resources may afford the services of hired babysitters and high educational level may result in jobs with flexible working hours or from home work opportunities. Thus, life circumstances of single mothers from different socio-economic background may vary. Only a handful of studies have highlighted the relevance of social class in this context, focusing on the heterogeneity of single mothers as a group and suggesting that their economic and social difficulties are class-related. Due to these reasons and the importance of SES status

in creating digital inequality (Scheerder et al., 2019, Bach et al., 2013), this research addresses the heterogeneity between single mothers and differentiates between them on the basis of their SES. Accordingly, the main purpose of this paper is to investigate the differences *within* a group of single mothers based on their SES as well as the differences *between* single and married mothers and whether these patterns are stable or changeable over time.

It is fitting for this type of research to be conducted in Israel, given its position as a global leader in the adoption of Internet use and mobile devices (Poushter, 2016). In addition, Israel is characterized by distressed economic conditions for single mothers (Natanzon et al., 2017). In fact, 25 percent of single parent families live below the poverty line compared to 18 percent among Israel's total population (Endeweld et al., 2018).

## **2. LITERATURE REVIEW**

### **2.1 Internet Use as a Potential Source for Human Capital for Single Mothers**

The poverty status of single mothers has been shown to be highly related to their educational level (Härkönen, 2018). Several barriers prevent impoverished single mothers from upgrading their education, among them shortage of financial resources, costs of child care and transportation, lack of access to resources, and limited social support (Bryant-Davis et al., 2010). Therefore, many mothers cannot even consider education as an attainable goal and as a means of escaping the cycle of poverty (Russell, 2019). Some of these barriers, however, can be overcome by using ICTs for study, information seeking and communication. Through the Internet, mothers may gain access to educational resources and broaden their cultural and social perspectives (Abdel-Basset et al., 2019). Research has shown a positive correlation between Internet use for study and for seeking information and growth in earnings, greater extrinsic rewards and job security. This correlation indicates that at least some of the skills and behaviours associated with Internet use reap rewards in the labour market (Lissitsa, 2015, Lissitsa and Chachashvili-Bolotin, 2016, Lissitsa et al., 2017, Czaja and Urbaniec, 2019).

### **2.2 Social Media as a Potential Source for Social Capital for Single Mothers**

Mainstream social relationships are much weaker for single mothers than for their married counterparts. Single mothers often experience less emotional and parental support, less contact with family members and friends, and more unstable social networks than married mothers (Li, 2020). Social judgment may attach "guilty" stigmas to single mothers for not waiting to have children within a heterosexual marriage or for not being able to "hold on" to a partner (Zartler, 2014). They are often stereotyped as unhappy, deviant, troubled, and lacking in child-rearing abilities. Compared with their counterparts in two-parent families, single mothers suffer higher levels of depression and family stress. As the sole parent, they must face in-family and external stressors on their own, often with limited resources. Economic hardship can isolate many single mothers because they do not have discretionary funds to socialize. Their inability to spend time outside the home on their own, going out with friends, or taking children on family outings can result in low self-esteem, helplessness, or a feeling that their world is shrinking.

Social media may help to increase available options. Through the Internet, single mothers can connect with other parents in new ways. They can exchange parenting experiences, tips, details and materials, and respond to comments. Although the social benefits for single mothers of using social media has been generally overlooked, to the best of our knowledge, studies conducted among mothers suggest that social media use contributes to a generally high perception of support and empowerment. It may also be equal in effect to the support traditionally found in neighbour communities (Lin et al., 2019). Facebook group pages for single mothers can help to locate other singles in the area for face-to-face meetings, exchanging advice, relieving feelings of isolation and loneliness, answering questions about child care and helping to fulfil emotional needs (Lupton et al., 2016).

## **2.3 Internet Use as a Potential Source for Public Services for Single Mothers**

The rapid development of e-government service systems objectively improves citizen access to government information and services. E-government promises greater accountability and transparency (Wilson, 2012), enhances direct democratic processes and reduces bureaucracy (Zernik, 2017). Accessing e-government service provision forms via the Internet is an 'anytime, anywhere' resource - as long as access to the Internet is available.

There is ample evidence that e-government services are especially relevant for vulnerable social groups: elderly, people with disabilities, and people from low SES (Lines et al., Mosehlana, 2019, O'Sullivan and Walker, 2018, Lissitsa and Chachashvili-Bolotin, 2021). E-government services use creates the great opportunity to the disadvantaged groups, as those with the greatest need for interpersonal social services are often least likely to have access to adequate human-delivered services. For example, a visit to governmental offices can create unnecessary difficulties for single mothers due to their limited mobility, high number of working hours, and time spent on child care. Filling out and submitting forms and checking account status or eligibility for assistance, discounts and allowances using online services are no longer constrained by physical collection or telephony services that may hinder access to service provision. In contrast to submitting a printed form, submitting an online form may facilitate detecting data omissions and/or inaccuracies and requesting 'corrected' information before submission, in this way preventing service delays. However, e-government usage rates are stagnating on rather low levels and the access of vulnerable groups to e-government services still faces various barriers. For instance, scholars note lack of awareness of e-services, low usability of e-government websites, lack of government support, the existence of digital divide and low trust in government and in Internet technology (Shah and Lim, 2011, Distel, 2018). As a result, those who experience the most problems online also have the most difficulty obtaining high-quality support even when it is available, creating an even larger 'gap' between those who do and do not need support. In the last decade, Israel has emerged as one of the world's leading nations in the field of online government services (Zernik, 2017). However, despite Israeli innovation and advanced technologies, there are significant disparities in Israeli society, and the members of vulnerable groups are also the least likely to be able to effectively engage online, either due to a lack of digital infrastructure or digital literacy.

## **2.4 Research Questions**

RQ1. Is there digital inequality between mothers based on their marital and socio-economic status?

RQ2. What trends, if any, were observed over time in digital uses among the examined groups?

## **3. METHODOLOGY**

### **3.1 Source of Data**

The current research is based on a repeated cross-sectional study. We used data which were collected by means of Annual Social Surveys conducted by Israel's Central Bureau of Statistics (CBS) in the period between 2014 and 2019. CBS interviewers carried out face to face interviews in the field between January and December of each year. The duration of each of the interviews, which were conducted in Hebrew, Russian and Arabic, was about one hour. The surveys provide up-to-date information about living conditions and the welfare of the population in Israel. The formulation of all the questions used in the study was identical throughout this period.

### **3.2 Population and Sampling Method**

The survey pool population comprises the permanent non-institutional population of Israel aged 20 and older, as well as residents of non-custodial institutions (such as student dormitories, immigrant absorption centers and independent living projects for the elderly). New immigrants are included in the survey population if they have been resident in Israel for at least six months. Each year the CBS sample size was about 7,500 persons aged 20 and older, representing about 4.5 million people in that age bracket. The response rate was around

80%. The sample design involved defining groups based on a combination of three demographic variables: population groups (Israeli-born Jews, immigrants and Arabs), age and gender. The expected size of each design group was to be proportional to its size in the population. The social survey samples are based on random selection and the sampling method enables generalization of the results to the entire Israeli population.

We created our database using 6 years of CBS Social Survey data (N=43,485). Our final sample included 7,040 Jewish mothers<sup>1</sup> aged up to 60 years old who have children under age 17, among them 1,046 (15%) are single mothers (see Table 1).

Table 1. Descriptive statistics and t-test results

		Single	Married	Total	t-value	Sig.
	N	827	4110	4937		
	%	16.8	83.2			
Dependent variables:						
Internet use for						
Study	Mean	0.37	0.38	0.38	-0.791	0.429
	SD	0.48	0.49	0.49		
Seeking information	Mean	0.91	0.95	0.94	-3.721	0.001
	SD	0.29	0.23	0.24		
Social media	Mean	0.89	0.91	0.91	-1.804	0.072
	SD	0.31	0.28	0.29		
E-government services	Mean	0.55	0.62	0.60	-3.384	0.001
	SD	0.50	0.49	0.49		
Independent variables						
Education	Mean	3.02	3.46	3.38	-7.721	0.000
	SD	1.48	1.31	1.35		
Income per person	Mean	2.98	4.08	3.90	-13.669	0.000
	SD	2.06	2.32	2.32		
Control variables						
Age	Mean	43.19	39.85	40.41	11.651	0.000
	SD	7.51	7.61	7.69		
Religiosity level	Secular (%)	56.2%	45.1%	46.9%		
	Traditional (%)	38.1%	37.7%	37.7%		
	Religious (%)	5.7%	17.3%	15.3%		

## 4. RESULTS

### 4.1 Segmentation and Descriptive Statistics

Firstly, in order to address the research questions, we ran a cluster analysis that included five socio-economic variables (see Table 2). As a result of the analysis, interviewees were divided into two distinct groups. As Table 2 indicates, the greatest distinction between the groups (according to F values) was found for income per person and education. Those who belong to the first cluster had lower income, education, lower percentage of car use, and ownership of a dwelling (and higher living density), compared to the second cluster. We defined the first cluster as the "Low SES" group and the second one as "High SES".

<sup>1</sup> Among the Israeli Arab female population, the percentage of single mothers is estimated at less than 6% (N=86) during the whole period 2014-2019, therefore we focused only on Jewish single mothers.

Table 2. Cluster analysis findings. Division of the respondents into groups according to the socio-economic variables, Mean and F-values

	Mean		F	df
	Low SES	High SES		
N	5231	1809		
Income per person (NIS)	2,530	6,950	11933.014**	6008
Education	2.88	4.3	1873.305**	6807
Current use of car	0.75	0.98	461.264**	7038
Ownership of a dwelling	0.66	0.81	147.586**	7038
Household density	1.9	1.55	567.096**	7025

\*\*  $p < 0.01$

Secondly, mothers were divided, by both marital and socio-economic status, into four distinct groups: single mothers from low SES, single mothers from high SES, married mothers from low SES, and married mothers from high SES. As Table 1 shows, among single mothers about 80 % belong to low SES, while among married mothers this rate was 74%. Low SES single mothers had the highest percent of immigrants compared to other groups. Regarding RQ1, the descriptive analysis shows similar patterns of between-group differences for all types of digital uses. The highest percentage of digital uses adoption was found among high SES mothers, both single and married. The percentage of taking advantage of all types of digital uses among low SES mothers was significantly lower. The most disadvantaged group was low SES married mothers. Our important finding is that more similarity was found *between* single vs. married mothers than *within* groups of single or married mothers.

## 4.2 Multivariate Analyses: Predicting Digital Uses

For a better understanding of the differences between four groups of mothers in digital uses, four logistic regressions (predicting four dependent variables) were applied. The findings show that four examined digital uses increased over time (see Table 3).

Table 3. Predicting digital uses – logistic regressions

	Using for Study Model A		Seeking Information Model B		Social media Model C		E-services Model D	
	B	Exp(B)	B	Exp(B)	B	Exp(B)	B	Exp(B)
Years of survey	0.08**	1.08	0.10**	1.11	0.29**	1.34	0.13**	1.14
Group (compared to low SES SM)								
Low SES MM	0.05	1.05	0.38**	1.46	0.18	1.19	0.15	1.16
High SES MM	0.53**	1.69	1.90**	6.69	0.94**	2.57	0.71**	2.04
High SES SM	0.58**	1.79	0.94*	2.57	0.39	1.48	0.71**	2.04
Religiosity	-0.16**	0.85	-1.07**	0.34	-1.33**	0.26	-0.45**	0.64
Age	0.00	1.00	-0.01*	0.99	-0.02**	0.98	-0.02**	0.98
Immigrants	-0.14*	0.87	-0.20*	0.81	0.07	1.07	-0.53**	0.59
Number of children	-0.10**	0.90	-0.19**	0.82	-0.17**	0.84	-0.01	0.99
Child aged 6-17	0.27**	1.31	0.06	1.07	0.02	1.02	-0.12	0.89
Center	-0.21**	0.81	-0.10	0.90	-0.07	0.93	-0.01	0.99
Weekly working hours	0.00*	1.00	0.02**	1.02	0.01**	1.01	0.02**	1.02

Constant	-0.66**	0.52	4.42**	83.04	4.79**	119.73	1.12**	3.06
Nagelkerke R2	0.057		0.406		0.476		0.160	
Cox & Snell R2	0.041		0.230		0.301		0.120	

.05\*\*  $p < 0.01$

After controlling for background variables, low SES single mothers had significant disadvantage in all digital uses compared to other groups (except for social media for high SES single mothers). The differences between single mothers and married mothers from the low SES were insignificant (except the low SES married mothers advantage in seeking information). The most advantaged groups in digital uses were high SES mothers both single and married. In most regression models level of religiosity, age, and number of children were negatively associated with digital uses. In general, immigrants were disadvantaged in digital uses compared to Israeli-born citizens. Weekly working hours had a tiny positive significant association with digital uses. Raising young children (aged less 6 years old) and living in a centre decreased the odds of using the Internet for study. It should be noted that model fit indices for seeking information and social media were substantially higher compared to using the Internet for study and e-government.

Addressing RQ2, we found insignificant interactional effects between the wave of data collection and belonging to a group according to family and SES status. Thus, the groups preserve their pace of digital uses adoption. These findings thus translate into the assumption that if effective intervention strategies are not applied, between-groups gaps will continue to exist.

## 5. CONCLUSION

In the research literature, single mothers are often presented in terms of poverty, disadvantage and exclusion, and treated as one of the most vulnerable groups. However, our study revealed heterogeneity *within* single mothers. In order to extend the literature on digital inequality of vulnerable groups, this finding should be addressed. We found that digital inequality among mothers is more likely to be explained by social and economic inequality (e.g., social class) (Breen and Breen Jr, 2004) than by difficulties and restrictions of single motherhood. One of the most important findings of our study is that we identify the most vulnerable group of mothers in terms of digital inequality – the low SES married mothers. Researchers of digital inequality traditionally address elderly, low educated, immigrants and minorities, and people with disabilities with low SES (Helsper and Reisdorf, 2017, Silver, 2014). However, they overlook the digital exclusion of low SES married mothers. As such, this group should be distinguished within the group of low SES women and treated properly by researchers and policymakers.

The current paper is based on data collected between 2014-2019, before the outbreak of COVID 19, which may lead to significant changes in the labour market such as digitalization, streamlining of work processes, and remote work. Such changes may provide both threats and opportunities for single mothers. Those who have yet to acquire digital skills or adopt digital uses may find themselves unemployed and without means of subsistence. In light of our findings, low SES single mothers are most likely to face such a situation, which may exacerbate their economic and social vulnerability due to their status as the single breadwinner for their family. In contrast, those with digital skills and who know how to use the Internet for study, work, communication and services consumption may enjoy staying home with their children. Simultaneously, they may be able to take advantage of digital uses as a means for empowerment and channel for economic and social mobility.

It is important to mention the limitations of this study, which derive from the CBS social survey database. While this study was unique in its use of data collected over time, the data were still cross-sectional. Only a single questionnaire item examined each Internet use, so we cannot distinguish what kind of information mothers seek online - whether their Internet use for study belongs to formal or informal education as well as what social media and e-government platforms they use. The CBS database does not provide information about respondent digital skills, which may offer deeper understanding of single mother digital inequality. Further research should thus address these issues.

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