

Prevalence of functioning difficulties and disability in Mexican adolescent women and their populational characteristics

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Abstract

Objective. Report prevalence of functioning difficulties and disabilities among Mexican adolescent women 15-17 years old and identify differences in characteristics of those with and without a functioning difficulty or disability **Materials and methods.** Using data from the National Survey of Boys, Girls and Women in Mexico 2015 we estimated prevalence of functioning difficulties and disability and used chi square tests for independence and logistic regression to explore associations between this condition and various characteristics. **Results.** Of Mexican adolescent women 15-17 years old, 11.1% had a functioning difficulty or disability. The group of domains of functioning difficulty and disability with by far the highest prevalence was socio-emotional and behavioral functioning difficulties or disability with 8.6%. Being employed, rural residence and self-reported depression symptoms were associated with having functioning difficulties or disability. **Conclusions.** This survey constitutes an important initial step in collecting data on functioning difficulty and disability in Mexico although larger samples should be studied.

Keywords: adolescent; disability; women; Mexico

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Resumen

Objetivo. Reportar la prevalencia de dificultades de funcionamiento y discapacidad entre mujeres adolescentes mexicanas de 15-17 años e identificar diferencias en características entre las que tienen tal condición y las que no. **Material y métodos.** Basado en la Encuesta Nacional de Niños, Niñas y Mujeres 2015, se estimaron prevalencias de problemas de funcionamiento y discapacidad y se exploró la relación con varias características con ji cuadrada y regresión logística. **Resultados.** El 11.1% de las mujeres adolescentes mexicanas de 15-17 años tuvieron dificultades de funcionamiento o discapacidad. El grupo de ámbitos de dificultades de funcionamiento y discapacidad con la mayor prevalencia fue socioemocional y comportamiento con 8.6%. Tener empleo, residencia rural y síntomas de depresión autoreportadas están asociadas con tener dificultades de funcionamiento y discapacidad. **Conclusiones.** Esta encuesta constituye un primer paso importante en la generación de datos sobre dificultades de funcionamiento y discapacidad en México, aunque se requiere estudiar el tema en muestras mayores.

Palabras clave: adolescente; discapacidad; mujeres; México

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Disability is increasingly recognized as a major public health issue as well as an important public health policy issue.¹ Both the way disability is defined and measured and the organized social response to it have changed over the last several decades.² This has gained speed especially since the 1970s, in great part through the political organization of people with disabilities themselves.³

In many countries, policy has moved away from segregation of people with disability (into residential institutions and special schools) and towards greater social inclusion within the community and in terms of education and employment.^{2,4} There has also been a generalized transition from an exclusively individual, medically-focused perspective (including policies with this focus) to a social approach based on recognition of the existence of environmental factors which disable people (for example, make them unable to use transportation, move through the community, or receive information).^{1,2} The social model of disability sprang from the argument that people are not disabled by their impairments so much as by barriers that exist in society.^{1,2,5}

This social model became an important tool in the disabled people's movement aimed at improving their lives, although some barriers (access to transportation and accessible buildings are examples) were more tractable than others (such as employment or education).⁵ However, many stakeholders in the disability arena—including Mike Oliver, the original author of the "social model of disability"—combine both an individual and a more social perspective on disability, where some difficulties can arise from the individual condition while others are clearly related to the social realm.^{5,6}

In line with the incorporation of the social model of disability, research on disability has increasingly used a definition based not on causes but on the problems people encounter in terms of daily functioning (using the International Classification of Functioning, Disability and Health, or ICF⁷ as a guide).^{1,2} This way of defining functioning difficulties and disabilities takes into account the interaction of an individual's condition with the context by combining three areas: impairments (problems in bodily function or alterations in the body's structure and functions such as hearing impairment); difficulties carrying out activities (walking, feeding oneself); and environmental barriers that restrict participation (problems with being involved in an aspect of life, such as discrimination or lack of accessibility of transportation).¹ Within this general definition, the United Nations-sponsored Washington Group on Disability Statistics (WG) proposes six specific domains of functional difficulties and disability: seeing, hearing, walking, cognition, self-care and communication.⁸ The WG operationalizes disability

through the measurement of functioning difficulties in these six universal, basic activities that, in an unaccommodating environment would place a person at risk of limited social participation.

The rights of people with functioning difficulties and disabilities according to the UN Convention on the Rights of Persons with Disabilities include respect for dignity and individual autonomy; non-discrimination; full and effective participation and inclusion in society; equality of opportunity; accessibility and acceptance.⁹ In order to monitor whether these rights are being respected, data are needed on the prevalence of disabilities as well as the disparities or inequalities that exist between people with and without disabilities.^{10,11} Such data is needed for children, adolescents and adults of varying ages.

The WG has sought to develop new tools for measuring functioning difficulties and disabilities (based on the abovementioned ICF) that can be used to collect data in different countries and cultures.¹² Specifically on child and adolescent disability, UNICEF has worked towards promoting the collection of data, first through the incorporation in 1995 of a 10-question disability module for children 2-9 years of age into the Multiple Indicator Cluster Surveys (MICS).^{*} In 2011 UNICEF decided to create a new module for measuring functional difficulties and disability in children and adolescents, in collaboration with the WG. This was done through a rigorous process of development, testing and validation (with cognitive- and field-testing in a number of countries).¹³ A pre-final version of the UNICEF/WG Module for measuring child and adolescent (2 to 17 years) functioning and disability was included in the MICS survey that was carried out in Mexico in 2015 (*Encuesta Nacional de Niños, Niñas y Mujeres, ENIM or National Survey of Boys, Girls and Women in Mexico*), providing new data for Mexican children and adolescents.

Taking advantage of the recent availability of this very current data on prevalence of functioning difficulties and disabilities among adolescents in Mexico, as well as data on characteristics and differences between adolescents with and without a functioning difficulty or disability, this article aimed to: 1) report prevalence of functioning difficulties and disabilities among Mexican adolescent women 15-17 years old and 2) identify differences in the characteristics of 15-17 year-old Mexican adolescent women with and without a functioning difficulty or disability.

* The Multiple Indicator Cluster Survey (MICS) is a household survey program developed by Unicef beginning in the mid-1990s to help countries fill data gaps for key indicators related to women and children (and later men).

Materials and methods

Study population and sample

This analysis used data from the ENIM, carried out in 2015; the ENIM is the implementation in Mexico of the Multiple Indicator Cluster Survey (MICS), a global program for monitoring children's and women's health and wellbeing which is coordinated by Unicef. The Ethics Committee of the National Institute of Public Health of Mexico approved the survey research protocol, letters of consent and instruments used in the ENIM; letters of informed consent were signed by all questionnaire respondents. This was a probabilistic, multi-stage, cluster, household survey that is representative at the national and regional levels and for rural and urban areas. A detailed description of the survey methodology can be found elsewhere.¹⁴ The sample used in this analysis consisted of 1 029 adolescent women from 15-17 years old.

Questionnaires and variables

Data analyzed for this paper were collected with three questionnaires: the first on household characteristics was applied to an adult member of the household; the second, on education, sexual and reproductive health, depressive symptoms, life satisfaction and use of communication and information media and technology, was applied to the adolescent woman; and the third, on functioning difficulties and disability of the adolescent woman, was applied to her mother (or, if the mother did not reside in the home, her guardian).*

As mentioned, the questionnaire on functioning difficulties and disability was developed by Unicef and the WG to identify children and adolescents with functioning difficulties, who in the absence of an enabling environment would be at greater risk of limited participation in society as compared to their peers in the general population. The instrument includes 21 questions that evaluate functioning difficulties in the domains of seeing, hearing, walking, feeding or dressing, being understood inside or outside the household, learning, remembering, anxiety, depression, controlling behavior, focusing attention or concentrating, accepting change and making friends. This instrument is based on the biopsychosocial model of disability and as such focuses on the presence and degree of severity of functioning difficulties, instead of the causes of these difficulties. For

example, a difficulty in mobility could be the results of cerebral palsy, the loss of a limb, paralysis due to poliomyelitis or another cause; this instrument measures the difficulty but, as mentioned, not the cause. The level or severity of functioning difficulties or disability for most domains is estimated by asking if the child had no difficulty, some difficulty, a lot of difficulty or could not do it at all. Specifically for anxiety or depression, severity was measured by how often the difficulty occurs (daily, weekly, monthly, a few times a year or never) and for difficulty controlling behavior by asking if the child had no difficulty, the same or less, more or much more than other children the same age.

Based on the data collected with this instrument, for this analysis we defined the following groupings of domains of functioning difficulty and disability: sensorial (seeing and hearing), motor (walking, feeding or dressing), communication (being understood inside or outside the household), cognitive (learning, remembering, focusing attention), socio-emotional and behavioral (anxiety, depression, controlling behavior, accepting change, making friends). We also calculated the number of adolescent women with a moderate or severe functioning difficulty or disability (measured as "a lot of difficulty" or "cannot do it at all") in at least one domain, to estimate a general prevalence of any functioning difficulty or disability.

The analysis incorporated the following characteristics of the household where the adolescent woman resided: rural or urban residence, region of the country, wealth index, if the head of the household speaks an indigenous language, use of improved drinking water, improved sanitation and having a place for hand-washing with running water and soap or another cleaning agent. The wealth index takes into account household characteristics, crowding (inhabitants per bedroom), possession of durable goods, home ownership and having a bank account. In this analysis, we divided households into poor (wealth index quintiles 1 and 2) and non poor (quintiles 3-5). Data on the young woman's education, consumption of mass media and use of computers and the internet was also included in the analysis. The sexual and reproductive health variables that were included were the following: marital status, marriage before age 15 years, had a live newborn, never had sex, sexual initiation before age 15 years and knowledge about HIV/AIDS and attitudes towards people living with HIV. In addition, we included the variables: use of a modern contraceptive method with the current partner, met need for contraception, condom use at first and last sexual intercourse (which were only analyzed for adolescents who were sexually active). We also included psychosocial variables: self-reported symptoms of depression

* Four questionnaires were applied in the ENIM, but only the three mentioned above were used in this analysis. The questionnaires can be consulted at <https://www.insp.mx/enim2015/cuestionarios.html>

and life satisfaction (being satisfied with life in general and whether one's life has improved over the last year and one thinks it will continue to improve).

Statistical analysis

We calculated the prevalence for each group of functioning difficulty or disability domains. Then, we computed frequencies of young women's characteristics according to whether or not they had functioning difficulties or disability in at least one domain. We also used chi squared tests and 95% confidence intervals (95%CI) to report the statistical significance of differences between women's characteristics and having functioning difficulties or disability (or not). All analyses were conducted using STATA 14.0 *svy* commands for analyzing complex survey design data.

Next, we used multivariable adjusted logistic regression to assess the association between having functioning difficulties or disability and selected characteristics (employment, education, wealth index and rural/urban residence). The dependent variable is coded as one if the woman has a functioning difficulty or disability and zero otherwise. We also constructed a second model that adjusts for the same variables described above with the addition of self-reported depressive symptoms, overall life satisfaction, happiness, and perceiving life as having improved in the last year and that it will improve over the next year. In this model, we excluded the adolescent women with depression as measured by the functioning difficulty and disability instrument applied to the young woman's mother (Unicef-WG instrument) given the evident correlation between this and the life satisfaction variables and self-reported depressive symptoms.

Results

In this nationally representative sample of Mexican adolescent women 15-17 years old, 11.1% had a functioning difficulty or disability in at least one domain (table I). The group of domains of functioning difficulty and disability with by far the highest prevalence was socio-emotional and behavioral functioning difficulties or disability with 8.6%. The other domains had a prevalence of around one percent or less, with 1.1% of Mexican adolescent women 15-17 years old with sensory functioning difficulties and disability, 0.9% with cognitive functioning difficulties or disability, 0.5% with motor functioning difficulties or disability and 0.1% with communication functioning difficulties or disability.

We found no significant differences between Mexican adolescent women 15-17 years old with and without

Table I
PREVALENCE OF FUNCTIONING DIFFICULTIES AND DISABILITY IN MEXICAN ADOLESCENT WOMEN 15-17 YEARS OLD (N=1 029). MEXICO, ENIM 2015

Type of functioning difficulties and disability*	n	%
Sensorial	11	1.1
Motor	5	0.5
Communication	1	0.1
Cognitive	9	0.9
Socio-emotional and behavioral	89	8.6
Any functioning difficulty or disability [‡]	115	11.1
No functioning difficulty or disability	914	88.4

* Combined percentages do not equal 100% because adolescent women could have a functioning difficulty or disability in more than one domain.

‡ A functioning difficulty or disability in at least one domain

a functioning difficulty and disability in terms of rural or urban residence, wealth index (whether the household was poor or non poor), use of communication and information technology and media, marital status, or most sexual and reproductive behaviors (tables II and III). In relation to education, there were no significant differences between Mexican adolescent women 15-17 years old with and without a functioning difficulty and disability in terms of current school attendance, educational lag or having an educational level of primary school or less versus secondary school or more (data not shown). Likewise, there was no significant difference between adolescent women with and without a functioning difficulty and disability in terms of having an educational level of less than upper secondary school versus upper secondary school and more (table II). Compared with women without a functioning difficulty or disability, adolescent women with a functioning difficulty or disability were more likely to reject the two most common misconceptions about HIV and know a person with HIV can appear healthy and to have ever had sex (table III). Also, a higher percentage of adolescent women with a functioning difficulty or disability reported being employed (table II).

Taking into account only those adolescent women whose mothers (or guardians) did not report that they were sad or depressed daily, some significant differences were observed between those with and without a functioning difficulty and disability in terms of psychosocial characteristics. Specifically, significantly more adolescent women with a functioning difficulty or disability had self-reported symptoms of depression

Table II
SOCIO-DEMOGRAPHIC CHARACTERISTICS AND USE OF COMMUNICATION AND INFORMATION TECHNOLOGY AMONG MEXICAN ADOLESCENT WOMEN 15-17 YEARS OLD WITH AND WITHOUT FUNCTIONING DIFFICULTIES AND DISABILITY. MEXICO, ENIM 2015

Area	Without a functioning difficulty or disability		With a functioning difficulty or disability		p value χ^2	Total	
	%	[95%CI]	%	[95%CI]		%	[95%CI]
Area							
Urban	69	[63.6,73.8]	76.5	[65.8,84.6]	0.1782	69.8	[64.9,74.4]
Rural	31	[26.2,36.4]	23.5	[15.4,34.2]		30.2	[25.6,35.1]
Total	100		100			100	
Region							
Northwest Mexico	24.6	[19.3,30.8]	19.3	[9.1,36.4]	0.3177	24	[18.6,30.4]
Northeast Mexico	20	[16.9,23.6]	14.6	[7.9,25.4]		19.4	[16.5,22.8]
Central Mexico	14.3	[11.2,18.1]	10.8	[5.8,19.0]		13.9	[10.9,17.5]
Mexico City and Mexico State	16.5	[13.1,20.5]	24.7	[14.4,39.1]		17.4	[14.1,21.4]
Southern Mexico	24.6	[20.2,29.6]	30.6	[20.6,42.8]		25.3	[21.1,30.1]
Total	100		100			100	
Poverty/Wealth index							
Non poor	51	[45.4,56.5]	56	[42.6,68.6]	0.4734	51.5	[46.1,56.9]
Poor	49	[43.5,54.6]	44	[31.4,57.4]		48.5	[43.1,53.9]
Total	100		100			100	
Head of household's ethnicity							
Indigenous	11.5	[7.5,17.3]	8.7	[4.3,16.6]	0.6975	11.2	[7.5,16.4]
Not indigenous	88.2	[82.5,92.2]	91.3	[83.4,95.7]		88.5	[83.4,92.2]
Non response	0.3	[0.1,1.4]	0			0.2	[0.0,1.3]
Total	100		100			100	
Use of improved drinking water in the home							
No	6.1	[4.1,9.1]	5.8	[2.3,13.8]	0.9009	6.1	[4.2,8.8]
Yes	93.9	[90.9,95.9]	94.2	[86.2,97.7]		93.9	[91.2,95.8]
Total	100		100			100	
Improved sanitation in the home							
No	5.9	[3.9,8.9]	6.8	[3.0,14.4]	0.7665	6.1	[4.2,8.8]
Yes	94.1	[91.1,96.1]	93.2	[85.6,97.0]		93.9	[91.2,95.8]
Total	100		100			100	
Homes with a specific place for hand washing with presence of running water and soap or a cleaning agent							
No	12.4	[9.0,16.7]	6.9	[2.6,17.1]	0.2298	11.7	[8.7,15.7]
Yes	87.6	[83.3,91.0]	93.1	[82.9,97.4]		88.3	[84.3,91.3]
Total	100		100			100	
Employment (among adolescent women)							
No	88.4	[84.9,91.2]	69.8	[49.5,84.5]	0.0056	85.8	[81.2,89.4]
Yes	11.6	[8.8,15.1]	30.2	[15.5,50.5]		14.2	[10.6,18.8]
Total	100		100			100	
Education							
Less than upper secondary	37.2	[32.3,42.3]	40.9	[28.2,54.9]	0.5932	37.6	[32.8,42.7]
Upper secondary or higher	62.8	[57.7,67.7]	59.1	[45.1,71.8]		62.4	[57.3,67.2]
Total	100		100			100	

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Watches TV, listens to radio and/or reads a newspaper at least once a week

No	4.5	[2.9,6.9]	5	[1.9,12.3]	0.8295	4.5	[3.0,6.8]
Yes	95.5	[93.1,97.1]	95	[87.7,98.1]		95.5	[93.2,97.0]
Total	100		100			100	

Used a computer in the last 12 months

No	20.8	[17.1,25.0]	18	[10.8,28.5]	0.5836	20.5	[17.1,24.4]
Yes	79.2	[75.0,82.9]	82	[71.5,89.2]		79.5	[75.6,82.9]
Total	100		100			100	

Used internet in the last 12 months

No	16.7	[13.4,20.6]	21.1	[12.9,32.5]	0.3697	17.2	[14.0,20.9]
Yes	83.3	[79.4,86.6]	78.9	[67.5,87.1]		82.8	[79.1,86.0]
Total	100		100			100	

and fewer of them reported being somewhat or very happy, as compared to their peers without a functioning difficulty or disability (table IV).

Table V shows the results of the multivariable-adjusted logistic regression models. In the first model, only having employment was significantly and positively associated with having a functioning difficulty or disability [OR=1.015, $p<0.01$]. We also found a significant, negative association between having a functioning difficulty or disability and living in a rural area (area of residence [OR=0.398, $p<0.05$]).

In our second model, we found that for adolescent women 15-17 years old, having a functioning difficulty or disability is marginally significantly and positively associated with self-reported symptoms of depression. This model excluded those adolescent women whose mothers reported they were sad or depressed daily and controlled for employment, education, poverty, area of residence and the life satisfaction variables described above. Thus, adolescent women with self-reported depression symptoms are more likely to be classified as having a functioning difficulty or disability in any domain (excluding depression in the adolescent which was reported by the mother, which as mentioned was not included in the model) [OR = 2.28, $p<0.1$] (table V).

Discussion

This study provides some of the first scientific data on the prevalence of functioning difficulties and disabilities in Mexican adolescent women as measured by an instrument that was developed and rigorously tested in various countries by a group of international and interdisciplinary experts. Overall, slightly more than a tenth (11.1%) of Mexican adolescent women 15-17 years old had a functioning difficulty or disability in

at least one domain. Comparing the prevalence found in this survey with other data, either international or at the national level, is extremely problematic in part because the measurement instrument used in the survey reported here was developed very recently and has not been used in many other countries. In addition to the fact that surveys of adult populations do not always include people 15-17 years old, the WG instrument for adults is designed to be included in national census and has only 6 questions,^{10,11,15} and thus differs from the Unicef-WG instrument (used here) which is designed to be included in surveys which have the capacity to apply longer instruments with more questions. For example, an analysis of the World Health Survey applied to adults 18 years and over in 59 countries in 2010 which sought to include only the four survey questions which are similar to the WG instrument for adults, found an overall prevalence of functional difficulties and disability in adults in Mexico of 5.5% for having one severe limitation and 9.9% for one moderate limitation.¹⁶ These prevalences differ from our findings for a variety of reasons, including the different age group and that many domains (hearing, communicating, and socio-emotional issues such as depression or anxiety) were not included in that analysis though, which were included in our survey.

The group of domains of functioning difficulty and disability with the highest prevalence by far in the current analysis was socio-emotional and behavioral functioning difficulties or disability, which included young women with anxiety or depression, who had trouble controlling behavior, accepting change or making friends. In relation to this, the Global Burden of Disease Study 2013, which includes data for 188 countries, found that for 15-19 year-old women the first cause of years lost due to disability (YLDs) and of

Table III
SEXUAL AND REPRODUCTIVE BEHAVIOR AND HIV KNOWLEDGE AMONG MEXICAN ADOLESCENT WOMEN 15-17 YEARS OLD WITH AND WITHOUT FUNCTIONING DIFFICULTIES AND DISABILITY. MEXICO, ENIM 2015

	Without a functioning difficulty or disability		With a functioning difficulty or disability		p value χ^2	Total	
	%	[95%CI]	%	[95%CI]		%	[95%CI]
Married or living together as a couple							
No	91.2	[88.4,93.3]	93.2	[85.0,97.1]	0.5535	91.4	[88.9,93.4]
Yes	8.8	[6.7,11.6]	6.8	[2.9,15.0]		8.6	[6.6,11.1]
Total	100		100			100	
Married before age 15 yrs							
No	97.3	[96.0,98.1]	97.9	[93.7,99.3]	0.6709	97.4	[96.2,98.1]
Yes	2.7	[1.9,4.0]	2.1	[0.7,6.3]		2.6	[1.9,3.8]
Total	100		100			100	
Had a live newborn							
No	91.8	[89.1,93.8]	93	[87.4,96.2]	0.6112	91.9	[89.5,93.8]
Yes	8.2	[6.2,10.9]	7	[3.8,12.6]		8.1	[6.2,10.5]
Total	100		100			100	
Never had sex							
Has had sex	11.2	[7.9,15.7]	27.4	[14.7,45.3]	0.0151	13.1	[9.8,17.3]
Has not had sex	88.8	[84.3,92.1]	72.6	[54.7,85.3]		86.9	[82.7,90.2]
Total	100		100			100	
Sex before age 15 yrs							
No	93	[90.3,94.9]	95.8	[90.6,98.2]	0.2559	93.3	[90.9,95.1]
Yes	7	[5.1,9.7]	4.2	[1.8,9.4]		6.7	[4.9,9.1]
Total	100		100			100	
Uses a modern contraceptive method with current partner							
No	94	[92.1,95.5]	92	[83.6,96.3]	0.4796	93.8	[91.9,95.3]
Yes	6	[4.5,7.9]	8	[3.7,16.4]		6.2	[4.7,8.1]
Total	100		100			100	
Met need for contraception							
No	47.9	[34.8,61.4]	56.7	[20.6,86.9]	0.6584	49.4	[35.1,63.8]
Yes	52.1	[38.6,65.2]	43.3	[13.1,79.4]		50.6	[36.2,64.9]
Total	100		100			100	
Used a condom at first sexual intercourse							
No	50.3	[38.3,62.3]	51.8	[25.7,76.9]	0.5933	50.6	[39.5,61.6]
Yes	49.7	[37.7,61.7]	47.6	[22.7,73.7]		49.3	[38.2,60.4]
Non response	0		0.6	[0.1,4.8]		0.1	[0.0,0.8]
Total	100		100		100		
Used a condom at last sexual intercourse							
No	63.6	[48.9,76.1]	44.1	[16.4,76.0]	0.2665	60.5	[47.9,71.9]
Yes	36.4	[23.9,51.1]	55.1	[23.7,82.9]		39.4	[28.0,52.0]
Non response	0		0.8	[0.1,6.2]		0.1	[0.0,0.9]
Total	100		100		100		

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Rejects the two most common misconceptions about HIV and knows a person with HIV can appear healthy							
No	59	[53.9,64.0]	44.1	[31.4,57.6]	0.0405	57.3	[52.5,62.0]
Yes	41	[36.0,46.1]	55.9	[42.4,68.6]		42.7	[38.0,47.5]
Total	100		100			100	
Knows HIV can be transmitted from mother to child							
No	16.8	[13.0,21.5]	12.5	[6.1,24.2]	0.4204	16.4	[12.8,20.7]
Yes	83.2	[78.5,87.0]	87.5	[75.8,93.9]		83.6	[79.3,87.2]
Total	100		100			100	
Agrees with four statements of acceptance (non discrimination/stigmatization) of people with HIV							
No	69.8	[65.0,74.3]	68.6	[54.4,80.0]	0.8659	69.7	[65.4,73.7]
Yes	30.2	[25.7,35.0]	31.4	[20.0,45.6]		30.3	[26.3,34.6]
Total	100		100			100	
Knows where to get an HIV test							
No	53.1	[48.4,57.7]	47.9	[34.2,61.9]	0.4754	52.5	[47.8,57.1]
Yes	46.9	[42.3,51.6]	52.1	[38.1,65.8]		47.5	[42.9,52.2]
Total	100		100			100	

Table IV
PSYCHOSOCIAL CHARACTERISTICS AMONG MEXICAN ADOLESCENT WOMEN 15-17 YEARS OLD*
WITH AND WITHOUT FUNCTIONING DIFFICULTIES AND DISABILITY. MEXICO, ENIM 2015

	Without a functioning difficulty or disability		With a functioning difficulty or disability		p value χ^2	Total	
	%	[95%CI]	%	[95%CI]		%	[95%CI]
Self-reported symptoms of depression [‡]							
No	87.8	[84.5,90.5]	74.4	[58.5,85.7]	0.0198	86.8	[83.6,89.4]
Yes	12.2	[9.5,15.5]	25.6	[14.3,41.5]		13.2	[10.6,16.4]
Total	100		100			100	
Satisfied with their life in general							
No	4.2	[2.5,6.9]	4	[0.9,15.3]	0.9342	4.2	[2.6,6.7]
Yes	95.8	[93.1,97.5]	96	[84.7,99.1]		95.8	[93.3,97.4]
Total	100		100			100	
Somewhat or very happy							
No	6.3	[4.6,8.4]	15.8	[7.5,30.5]	0.0244	7	[5.4,9.1]
Yes	93.7	[91.6,95.4]	84.2	[69.5,92.5]		93	[90.9,94.6]
Total	100		100			100	
Thinks her life has been improving (last year) and will continue to improve (next year)							
No	42.9	[37.9,48.1]	48.8	[31.3,66.5]	0.5473	43.4	[38.6,48.3]
Yes	57.1	[51.9,62.1]	51.2	[33.5,68.7]		56.6	[51.7,61.4]
Total	100		100			100	

* The sample (n=429) for the analysis of the four variables included in this table excludes adolescent women classified as depressed as measured by the functioning difficulty and disability module applied to their mothers

[‡] Score equal to or above 9 on the CES-D7 scale

Table V
LOGISTIC REGRESSION MODELS, MEXICAN ADOLESCENT WOMEN 15-17 YEARS OLD WITH AND WITHOUT FUNCTIONING DIFFICULTIES AND DISABILITY. MEXICO, ENIM 2015

	Model 1*		Model 2‡	
	OR	95%CI	OR	95%CI
Employment (among adolescent women)	1.015§	[1.0052, 1.0238]	1.0107#	[0.9987, 1.0233]
Education (reference = less than upper secondary)				
Upper secondary education or higher	0.702	[0.2741, 1.7971]	0.5462	[0.1539, 1.9988]
Poor household	0.975	[0.3519, 2.6987]	0.7512	[0.2804, 2.5609]
Area of residence (reference = urban)				
Rural	0.398*	[0.1628, 0.9723]	0.3992#	[0.1485, 1.1226]
Depression symptoms	--		2.2846#	[0.8846, 6.4499]
Very or somewhat satisfied with her life	--		0.7475	[0.1266, 4.5768]
Thinks her life has been improving (last year) and will continue to improve (next year)	--		1.0410	[0.4015, 2.6902]
Constant	0.203§	[0.0677, 0.6083]	0.2292	[0.0258, 2.0559]
n	482‡		429*	

* Model 1 included adolescent women 15-17 years with a functioning difficulty or disability in any domain and women without a functioning difficulty or disability

‡ Model 2 excluded adolescent women whose functioning difficulty or disability was depression (measured through mother/caregiver report), which is correlated with the psychosocial variables (measured through self-report) included in the second model

§ $p < 0.01$

$p < 0.1$

* $p < 0.05$

disability-adjusted life years (DALYs) was depressive disorders in 1990, 2005 and 2013 (the three years for which data existed).¹⁷ Anxiety disorder was the fifth cause of YLDs for 15-19 year-old women for all three years while anxiety rose during 1990 to 2013 from ninth to sixth as the cause of DALYs; conduct disorders were the eighth cause of YLDs in 1990 and the seventh cause in 2005 and 2013.¹⁷ In addition, high prevalence (37.9%) of onset of psychiatric disorders during adolescence was found in a cohort study of Mexicans which initiated during adolescence.¹⁸

For the other domains –cognitive, sensory, communication and motor functioning difficulties or disability–, this survey shows a prevalence under one percent among Mexican adolescent women 15 to 17 years old. Although these percentages may seem low, when interpreted in terms of the number of young women throughout Mexico who live with these functioning difficulties or disabilities, they are significant from a public policy and public health outlook. A variety of services (healthcare, rehabilitation), assistive technologies and other supports, and enabling environments are the right of all people with functioning difficulties or dis-

ability, regardless of severity.^{2,9} Of course, this includes a tenth of Mexican adolescent women reported by this study. Instruments to measure functioning difficulties or disabilities that have been rigorously standardized and tested such as the module employed in this survey should be used to monitor progress. Such surveillance can be used at different levels, from local rehabilitation programs to state or national level anti-discrimination and pro-accessibility policies and all the way up to the level of implementation of the UN Convention on the Rights of Persons with Disabilities.¹⁵

In general, our analysis found few associations or statistically significant differences in terms of social inequities or disparities, sexual and reproductive health behavior or psychosocial characteristics. This contrasts with existing international data (albeit in samples including other age groups and using other survey instruments), which has generally found greater social disparities (various indicators of socioeconomic status and education, for example) experienced by those with functioning difficulties or disability.^{1,12} An analysis of data collected with the Washington Group short questionnaire on adult functional difficulties and disability

found that in six countries (five in Africa and one in Asia), adults 15 years and over with functioning difficulties or disability had a much higher prevalence of never having attended school; the prevalence was generally double and up to as much as 5 times higher than among those without functioning difficulties or disability.¹²

One issue related to the lack of differences in characteristics of adolescent women with and without functioning difficulties or disability is that levels are poor for the entire study sample for some indicators or variables. For example, in this sample of adolescent women, over 90% in either group (with and without functioning difficulties or disability) did not use a modern contraceptive method with their current cohabiting partner and half did not use a condom during their first sexual intercourse (the analysis of use of contraception included only adolescents who were sexually active). This indicates a general need among adolescent women in Mexico (with or without functioning difficulties or disability, and probably among adolescent men as well, who were not studied here) for high quality sexual and reproductive health services and education.¹⁹⁻²²

This survey did find a marginally statistically significant association between adolescent women having a functioning difficulties or disability (reported by their mother or guardian and not including depression as measured by the Unicef/WG module) and self-reported depressive symptoms (measured with the Center for Epidemiological Studies Depression scale, or CES-D7). Systematic literature reviews show that it is not uncommon for adolescents to suffer from different levels of depression²³ and that there is strong evidence for the efficacy of cognitive behavioral therapy and interpersonal psychotherapy for depressed adolescents.²⁴ Greater availability and accessibility of in-school or external-to-school depression and anxiety interventions for adolescents could have a positive impact on this important mental health burden and improve related public health outcomes.²⁵ A lack of screening for depression has been found in Mexico among pregnant women and new mothers (in spite of the fact that they are in greater contact with health services during prenatal and early child care, as compared to other populations),²⁶ and given this it is likely that there is also a lack of screening for depression among adolescent women.

Our study also found that more adolescent women with a functioning difficulty or disability reported being employed as compared to their peers. The most common types of functioning difficulty or disability were grouped in the socio-emotional and behavioral domain (which included depression and anxiety). Although we do not know the directionality of the association between employment and having a functioning difficulty

or disability, one possibility is that adolescents who were both employed and enrolled in school developed depression or anxiety because of being overloaded with school and work responsibilities.

Limitations

In general, these analyses found few significant associations between an adolescent woman having a functioning difficulty and disability and the multiple socio-demographic characteristics, sexual and reproductive health behaviors and other aspects measured in this survey. Although the sample is nationally representative, the sample size may not have allowed a great enough statistical power to eliminate a type II error.²⁷ A type II error means that, perhaps because the sample size, our non-significant results could be false (the data show no difference between the two groups of adolescent women, but in reality there is a difference); the consensus is that there is a 1 in 5 chance of this type of error and therefore these results do not convey statistical certainty.²⁷

Another limitation is the fact that the functioning difficulty and disability questions were answered by the mothers, which may constitute a source of bias. However, we compared the results about depression and found that the results based on the mother's perception are very similar to the results obtained from the adolescent women's self-report, which leads us to conclude that the mother's report is a good proxy for measuring this issue.

Conclusions

This survey constitutes a baseline measurement (using a pre-final version of the Unicef/WG module) on functioning difficulty and disability in Mexico. Nevertheless, further data collection on this topic is needed in Mexico among a larger sample. Inclusion of the Unicef/WG module in larger surveys, such as the National Health Survey carried out by the National Institute of Public Health and surveys carried out by the National Institute of Statistics and Geography (Inegi, Spanish abbreviation), would provide data that can be stratified to a greater degree and very likely allow analysis that could confirm or deny the existence of important social disparities between young women (and other age groups as well as among men) with and without functioning difficulties and disability.

In order to be able to monitor public policies related to disability, ranging from rehabilitation and other health services to prevention of discrimination and stigma, as well as in general creating a more inclu-

sive and accessible social and built environment, good quality data are needed. Program priorities cannot be adequately set without good data, programs cannot be evaluated and monitored without them and data are also needed to allocate resources to and manage healthcare systems and social programs focused on reducing disparities among people with disabilities.² Data can also be used to promote greater prevention or alleviation of mild, moderate and more severe disabilities.¹ This survey is an important initial step in collecting data on functioning difficulty and disability in Mexico.

Declaration of conflict of interests. The authors declare that they have no conflict of interests.

References

- Hosseinpoor AR, Stewart-Williams JA, Gautam J, Posarac A, Officer A, Verdes E, et al. Socioeconomic inequality in disability among adults: a multicountry study using the World Health Survey. *Am J Public Health* 2013;103(7):1278-1286. <https://doi.org/10.2105/AJPH.2012.301115>
- World Health Organization, The World Bank. *World Report on Disability*. Geneva, Switzerland: World Health Organization, 2011.
- Charlton J. *Nothing about us without us: disability, oppression and empowerment*. Berkeley: University of California Press, 1998. <https://doi.org/10.1525/california/9780520207950.001.0001>
- Parmenter TR. The present, past and future of the study of intellectual disability: challenges in developing countries. *Salud Publica Mex* 2008;50(suppl 2):s124-s131. <https://doi.org/10.1590/S0036-36342008000800004>
- Oliver M. The social model of disability: thirty years on. *Disability & Society* 2013;28(7):1024-1026. <https://doi.org/10.1080/09687599.2013.818773>
- Shakespeare T. *Disability rights and wrongs*. London: Routledge, 2006.
- World Health Organization. *International Classification of Functioning, Disability, and Health*. Geneva, Switzerland: World Health Organization, 2001.
- Washington Group on Disability Statistics (WG). *Understanding and Interpreting Disability as Measured using the WG Short Set of Questions*. 2009 [accessed on October 5, 2016]. Available at: http://www.cdc.gov/nchs/data/washington_group/meeting8/interpreting_disability.pdf
- United Nations. *United Nations Convention on the Rights of Persons with Disabilities 2006* [accessed on October 5, 2016]. Available at: https://www.un.org/disabilities/documents/convention/convention_accessible_pdf.pdf
- Washington Group. *Report of Ability of Countries to Disaggregate SDG Indicators by Disability*. 2016 [accessed on October 5, 2016]. Available at: http://www.washingtongroup-disability.com/wp-content/uploads/2016/02/report_of_ability_of_countries_to_disaggregate_sdg_indicators_by_disability.pdf
- Loeb MA. White Paper on Disability Measurement. *Journal for Disability and International Development* 2012;1:4-11.
- Madans JH, Loeb ME, Altman BM. Measuring disability and monitoring the UN Convention on the Rights of Persons with Disabilities: the work of the Washington Group on Disability Statistics. *BMC Public Health* 2011;11 (suppl 4):S4. <https://doi.org/10.21149/spm.v58i6.8192>
- Washington Group on Disability Statistics. 2014. *WG/UNICEF Module on Child Functioning and Disability: Background* [accessed on October 5, 2016]. Available at: https://www.cdc.gov/nchs/data/washington_group/meeting13/wg13_unicef_child_disability_background.pdf
- De Castro F, Rojas R, Villalobos A, Allen B, Hubert C, Romero M, et al. Bases metodológicas y resultados de la implementación de la Encuesta Nacional de Niños, Niñas y Mujeres en México 2015. *Salud Publica Mex* 2016;58(6):676-684. <https://doi.org/10.21149/spm.v58i6.8192>
- Madans JH, Loeb M. Methods to improve international comparability of census and survey measures of disability. *Disabil Rehabil* 2013;35(13):1070-1073. <https://doi.org/10.3109/09638288.2012.720353>
- Mitra S, Sambamoorthi U. Disability prevalence among adults: estimates for 54 countries and progress toward a global estimate. *Disabil Rehabil* 2014;36(11):940-947. <https://doi.org/10.3109/09638288.2013.825333>
- Mokdad AH, Forouzanfar MH, Daoud F, Mokdad AA, El Bcheraoui C, Moradi-Lakeh M, et al. Global burden of diseases, injuries, and risk factors for young people's health during 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 2016;387(10036):2383-2401. [https://doi.org/10.1016/S0140-6736\(16\)00648-6](https://doi.org/10.1016/S0140-6736(16)00648-6)
- Benjet C, Borges G, Méndez E, Albor Y, Casanova L, Orozco R, et al. Eight-year incidence of psychiatric disorders and service use from adolescence to early adulthood: longitudinal follow-up of the Mexican Adolescent Mental Health Survey. *Eur Child Adolesc Psychiatry* 2016;25(2):163-173. <https://doi.org/10.1007/s00787-015-0721-5>
- Darroch JE, Woog V, Bankole A, Ashford LS. *Adding it up: costs and benefits of meeting the contraceptive needs of adolescents*. New York: Guttmacher Institute, 2016. Available from: <https://www.guttmacher.org/report/adding-it-meeting-contraceptive-needs-of-adolescents>
- WHO. *Making health services adolescent friendly, Developing national quality standards for adolescent friendly health services*. Geneva: WHO, 2012.
- Chandra-Mouli V, McCarragher DR, Phillips SJ, Williamson NE, Hainsworth G. Contraception for adolescents in low and middle income countries: needs, barriers, and access. *Reprod Health* 2014;11(1):1. <https://doi.org/10.1186/1742-4755-11-1>
- Rojas R, de Castro F, Villalobos A, Allen-Leigh B, Romero M, Braverman-Bronstein A, Uribe P. Educación sexual integral: cobertura, homogeneidad, integralidad y continuidad en escuelas de México. *Salud Publica Mex* 2017;59(1):19-27. <https://doi.org/10.21149/8411>
- Wesselhoeft R, Sørensen MJ, Heiervang ER, Bilenberg N. Subthreshold depression in children and adolescents - a systematic review. *J Affect Disord* 2013;151(1):7-22. <https://doi.org/10.1016/j.jad.2013.06.010>
- Weersing VR, Jeffreys M, Do MT, Schwartz KT, Bolano C. Evidence base update of psychosocial treatments for child and adolescent depression. *J Clin Child Adolesc Psychol* 2016:1-33.
- Werner-Seidler A, Perry Y, Calear AL, Newby JM, Christensen H. School-based depression and anxiety prevention programs for young people: A systematic review and meta-analysis. *Clin Psychol Rev* 2017;51:30-47. <https://doi.org/10.1016/j.cpr.2016.10.005>
- De Castro F, Place JM, Allen-Leigh B, Rivera-Rivera L, Billings D. Provider report of the existence of detection and care of perinatal depression: quantitative evidence from public obstetric units in Mexico. *Salud Publica Mex* 2016;58(4):468-471. <https://doi.org/10.21149/spm.v58i4.8028>
- Abersson C. *Interpreting Null Results: Improving Presentation and Conclusions with Confidence Intervals*. *Journal for Articles in Support of the Null Hypothesis* 2002;1(3):36-42.