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Identifying People with Depression: The role of 'Self Rated Health'

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Abstract

Depression is the leading cause of disability worldwide. However, it is under recognized and undertreated. Self-rated health is a one-item question that has been used for population health monitoring. It was aimed to examine the prospect of using 'self-rated health' (SRH) in identifying people with depression among adult community-based population in Bangladesh over a one-year period controlling for socio-demographic, chronic diseases and symptoms, physical disability, smoking, and life events. We examined data from 3455 participants aged 18 years and above who participated in the 2015 January and 2016 January Health and Socio-Economic Survey of Independent University, Bangladesh. Using multiple logistic regressions, depression at baseline was examined to predict self-rated health at one-year follow-up adjusting for socio-demographic variables, chronic diseases, risk behaviors, and life events. Respondents with depression at baseline had 35% higher odds of reporting poor SRH in the follow-up round compared to those with no depression (OR=1.35, 95% CI=1.03 1.78, P<0.03). SRH may be used by community health workers as a preliminary indicator to identify people who may have depression followed by further screening and management for depression.

Keywords: Self-rated Health, Depression, Cross-sectional study, Bangladesh.

Introduction

Depression affects over 300 million people worldwide.[1] World Health Organization (WHO) states that depression is the leading cause of disability as measured by Years Lived with Disability (YLDs) and the second cause of Disability Adjusted Life Years (DALYs) in the age category 15-44 years.[1,2] Unlike other chronic diseases, depression can have an early onset in adolescence or earlier and limit achievements in several spheres of life.[3-5] Nevertheless, depression is under recognized and under treated. At one end, people fail to be on familiar terms with the psychological and somatic symptoms of depression and do not seek care.[6-8] It has been seen in several studies that around half of those affected by psychological distress or psychiatric diagnosis had not been seeking care.[9-15] On other end, detection rates of depression in clinical settings is poor.[16-18] A meta-analysis of studies regarding general practitioners' ability to recognize mild depression showed a detection sensitivity of only 56.5%.[19] Depression is associated with significant disability like diminished role functioning, quality of life, medical morbidity, and mortality.[20,21]

In a nationally representative study carried out in Bangladesh in 2006, the prevalence of major depression was 4.6%.[22] There is evidence of significant comorbidity of depression with other non-communicable disease like depression that often remains undetected and untreated, causing increased morbidity and mortality.[23,24] Prevalence of depression was found to be as high as 14% among adolescent girls in a population-based study in Bangladesh that were undetected.[25] Among elderly population, prevalence of mild and moderate depression was found to be 27% and 18% respectively and was also associated with several health ailments.[26]

Practice Points

- Depression is a leading cause of global disability.
- Self-rated health is significantly associated with depression.
- Female participants and participants with lower education and lower income had poorer SRH.
- Respondents with depression in base line had 35% higher odds of reporting poor SRH in the follow-up round.
- SRH may be used by community health workers as a preliminary indicator to identify people who may have depression followed by further screening and management for depression.

The high prevalence and disability associated with depression, poor awareness and care seeking and low detection rates by health care professionals makes a case to find alternative ways to identify people with depression for appropriate management. Self-rated health (SRH) is a one-item simple question that has been used in several studies for population health monitoring.[27-29] It can assess one's objective, subjective and psychosocial aspects of health and can be used by non-health professionals.[30,31] SRH is a stable and valid measure of a variety of physical and emotional dimensions of adolescent well-being.[32,33] In this context SRH may be used by non-health workers to facilitate in identification of individuals with depression in the community or health facilities for further and appropriate screening for depression and/

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or referral to specialist care.

In several studies, it was seen that depressive symptoms are among the main determinants of SRH and suggested to be of interest due to potential for change of these factors through public health interventions.[34-37] However, most of these studies were cross-sectional and conducted among older institutionalized participants. A longitudinal study in 2014 from three waves of Health and Retirement Study (HRS) in the United States showed depression to be the strongest predictor of SRH.[38] Though this study was longitudinal, participants were aged 50 years and above. So, the applicability of SRH in detecting depression among a wider age group of people cannot be ascertained.

In the current study, the participants were community based and the age group of people ranges from 18 to 75 years. Depression, the main independent variable was measured using the validated Bangla version of the 9-item Patient Health questionnaire (PHQ-9) which is a widely used self-reported measure of depression.[39,40] The dependent variable is self-reported health was measured on a 3-point scale.[41]

The aim of the current study was to determine whether depression is independently associated with subsequent poor SRH over a one-year period among adult Bangladeshi population controlling for confounders of poor SRH like age, gender, education, self-reported chronic diseases, smoking, and life events.

Materials and methods

Study Population

The study population consists of participants in the cohort of the health and socio-demographic survey conducted under the 'Live in Field Experience' program of Independent University, Bangladesh (IUB). Baseline information was taken from a total of 3455 respondents aged 18 to 75 years from 2015 and 2016 data.

The health and socio-demographic survey is conducted by Independent University, Bangladesh (IUB) across Bangladesh among respondents 18 years of age and above. Data is collected by face to face interview with respondents using a pre-tested questionnaire. The survey is conducted in nine sites located in the central, north-east, north-west and south-west of the country (http://www.iub.edu.bd/lfe/index.html). Each site has been purposively selected based on the availability of a non-government organization (NGO) working at the respective sites.

At each of the sites, three villages were randomly selected and from each selected village, hundred house-holds were randomly selected for inclusion into the cohort. Respondents of 18 years and above from selected households are interviewed using structured questionnaire. For this study data from nine survey sites from the rounds January 2015 and January 2016 were used. A total of 3455 respondents aged 18 years or more were included in this study.

Measurements

Self-Rated Health (SRH): SRH was asked using the question 'how do you assess your health compared to your peers: good, moderate or poor'? Moderate and poor SRH options were combined to form 'poor SRH' and the category of 'good SRH' was used as reference in the analysis.

Depression: Depression was measured using the validated Bangla version of the 9-item Patient Health questionnaire (PHQ-9) which is a widely used self-reported measure of depression.[39,40] Score between 0-9 was coded as 'no depression and score of 10 and above was coded as 'depression'.

Socio-demographic variables: The set of socio-demographic variables included age (grouped into 18 to 30; 31 to 40; 41 to 50 and > 50 years), gender (male or female), education and income. Education was classified into no education (never went to school); primary (class I to V); secondary (class VI to X); and high education (>10). Income was stratified into four categories (reference category: BDT 10001-Max income), (BDT 5001-10000), (BDT 1001-5000) and (BDT 0-1000).

Chronic Disease and Symptoms: Chronic diseases were measured by asking respondents if a health professional had told them they had any of the following chronic diseases: i) heart disease, ii) diabetes, iii) stroke, iv) cancer, v) arthritis, vi) respiratory distress, and vii) hypertension

Risk Behaviors: Smoking was considered as a risk behavior. Individuals who smoked at least one tobacco product daily in the past 12 months were considered as current smokers.

Life Events: Life events question included the presence or absence of any of the following adverse life events in the past 6 months prior to the interview: i) Loss of a job; ii) Retirement; iii) Loss of crops or loss in business, iv) Theft in the house, v) Divorce or separation from spouse; vi) Clash among family members; vi) Severe illness; vii) Facing violence; viii) Death of spouse; ix) Death of a close relative; x) Major reason for anxiety; xi) Marriage of a family member; xii) New job; xiii) Birth of a child; xiv) Away from family; and xv) Food insecurity.

Ethical Aspects

Researchers were duly careful about the ethical aspects of the study. Ethical permission was taken from Ethical Review Committee (ERC) of IUB before starting the study. Different steps of the study were supervised by School of Public Health (SPH), IUB. Informed written consent was obtained from the respondents without any influences. Confidentiality of data was ensured adequately and any unauthorized access to data was not possible.

Data Analysis

Data analysis was conducted using Stata 12 in 2 stages. In the first stage we conducted descriptive analysis to show the distribution of baseline characteristics with respect to SRH status in the follow up year, 2015.In the second stage multivariable logistic regression was used to estimate the odds ratio for self-rated poor health as a function of depression, socio demographic variables, self-reported chronic disease, life events and risk behaviors. All base line information including depres-

sion was taken from January 2015 data. SRH data was taken from January 2016.

Results

Table 1 shows the distribution of baseline characteristics with respect to SRH in 2016. Participants reporting poor SRH in follow-up year had higher rates of depression (12.4%) compared to participants reporting good SRH (6.5%). With increasing age, percentage of participants reporting poor SRH increased (18-30 yrs = 15.2%; 31-40 yrs = 17.8%; 41-50 yrs = 23.9%; and >51 = 43%). Participants with lower education reported poorer SRH compared to participants with higher education (no education = 53.0%, primary education = 22.2 %; secondary education = 19.2%, and >11yrs of education = 5.6%). Participants with lower income reported poorer SRH compared to those with higher income (BDT 0-1000= 40.2%; BDT 1001-5000= 24.4%; BDT 5001-10000= 22.2 % and BDT 10001-Max income = 13%). Female respondents reported slightly higher percentage of poor SRH was compared to males (50.7% and 49.3% respectively).

In table 2 respondents with depression in base line had 35% higher odds of reporting poor SRH in the follow up round (OR=1.35, 95% CI = 1.03, 1.78, p<0.03). Older respondents were more likely to report poor SRH in the follow up round (age group above 51, OR = 5.2, 95% CI= 4.08, 6.65, p<0.00; age group 41 to 50, OR = 2.39, 95% CI=1.81, 3.07, p<0.00; age group 31 to 40 years, OR =1.28, 95% CI=1.08, 1.65, p<0.04) while respondents with lower education were more likely to report poor SRH compared to their counter parts with higher levels of education (secondary education OR = 1.33, 95% CI = 0.95, 1.88, p<0.10; primary education OR = 1.66, 95% CI =1.178, 2.37, p<0.00, no education OR =1.98, 95% CI =1.42, 2.78, p<0.00). Female respondents had 30% higher odds of having poor SRH (OR = 1.30, 95% CI=1.03, 1.66, p<0.03).

Respondents with self-reported chronic disease at baseline were 65% more likely to have poor SRH (OR= 1.65, 95% CI =1.30, 2.10, p<0.00). Smokers in the previous year were slightly more likely to report poor SRH (OR=1.15, 95% CI =0.97, 1.37, p<0.11) while the presence of a life event in the previous year shows to increase the likelihood of reporting poor SRH in the follow up year (OR = 1.34. 95% CI = 1.03, 1.76, p<0.03). After controlling for all the predictor variables, depression in the baseline remained a significant predictor for SRH in the follow up round after one year.

Discussion

The key findings of the present study demonstrated that respondents with poor SRH in the follow-up round had 35% higher odds of having depression in the baseline year in comparison to respondents with good SRH. These findings build upon a previous

Table 1: Socio-demographic characteristics of respondents in 2015 with respect to SRH status in 2016 (N=3455)

Variables	Good SRH Respondents (%) (N=2479)	Bad SRH Respondents (%) (N=979)	Total Respondents (%) (N=3458)	*p*-value
Depression				
No	2317 (93.5%)	854 (87.59%)	3171 (91.83%)	0.000
Yes	161 (6.49%)	121 (12.41%)	282 (8.16%)	
Age				
18-30	894 (36.07%)	149 (15.28%)	1043 (30.20%)	0.000
31-40	702 (28.32%)	174 (17.84%)	876 (25.36%)	
41-50	480 (19.37%)	234 (24.00%)	714 (20.67%)	
>50	403 (16.26%)	422 (43.28%)	825 (25.89%)	
Education				
>11	343 (13.83%)	55 (5.61%)	398 (11.50%)	0.000
Secondary education	711 (28.68%)	188 (19.20%)	899 (25.99%)	
Primary education	555 (22.38%)	217 (22.16%)	772 (20.87%)	
No education	870 (35.09%)	519 (53.00%)	1389 (40.16%)	
Income				
BDT 10001-Max income	423 (17.07%)	128 (13.07%)	551 (15.93%)	0.008
BDT 5001-10000	588 (23.72%)	218 (22.26%)	806 (23.31%)	
BDT 1001-5000	524 (21.14%)	239 (24.41%)	763 (22.07%)	
BDT 0-1000	983 (39.66%)	394 (40.24%)	1337 (38.67%)	
Gender				
Male	1334 (45.74%)	483 (49.33%)	1817 (52.54%)	0.018
Female	1145 (46.18%)	496 (50.66%)	1641 (47.45%)	
Chronic disease				
No	2281 (92.01%)	814 (83.14%)	3095 (89.50%)	0.000
Yes	198 (7.98%)	165 (16.85%)	363 (10.49%)	
Current smoker				
No	1544 (62.28%)	475 (48.51%)	2019 (50.38%)	0.000
Yes	935 (37.71%)	504 (51.48%)	1439 (41.61%)	
Life events				
No	2302 (2.86%)	863 (88.15%)	3165 (91.52%)	0.000
Yes	177 (7.13%)	116 (11.84%)	293 (8.47%)	

Table 2: Multiple Logistic Regression

Independent variables	Odds Ratio	95% Confidence Interval	*p*-value
Depression			
No	1		
Yes	1.35	1.02 - 1.78	0.03
Age (years)			
18-30	1		
31-40	1.29	1.00 - 1.65	0.05
41-50	2.39	1.85 - 3.07	0.00
>50	5.21	4.08 - 6.64	0.00
Education			
Higher Education (> class 11)	1		
Secondary education	1.33	0.95 - 1.88	0.10
Primary education	1.70	1.18 - 2.37	0.01
No education	1.99	1.42 - 2.78	0.00
Income (BDT)			
>10,000	1		
5001-10000	1.19	0.91 - 1.55	0.22
1000-5000	1.36	1.02 - 1.81	0.03
No income	1.40	1.03 - 1.92	0.03
Gender			
Male	1		
Female	1.31	1.03 - 1.66	0.03
Chronic Disease			
No	1		
Yes	1.65	1.30 - 2.10	0.00
Current Smoker			
No	1		
Yes	1.15	0.97 - 1.37	0.11
Life Events			
No	1		
Yes	1.35	1.03 - 1.76	0.03

study that found depression to be the strongest predictor of self-rated health in a longitudinal study among institutionalized adults aged 50 to 104 years.[38] The current study population is based in the community and age ranged from 18 to 75 years. Depression in early years can have severe consequences like poor school and work performance, engaging in dangerous behavior like alcohol and drug use, and higher risk for infectious diseases and suicide.[42-44] In the older age groups, in addition to the above, depression has been found to be associated with increased risk of morbidity, suicide, decreased physical, cognitive and social functioning, and greater self-neglect all of which are in turn associated with increased mortality.[45]

Age and education of the respondents were significantly associated with SRH with older age and less educated respondents reporting poorer self-rated health compared to their younger and more educated counterparts. Other studies have shown similar findings as health problems and physical ailments tend to emerge and accumulate in old age and lower education has been associated with poorer health .[46-48] Other studies have found significant association of income with SRH, individuals with lower income reporting poor SRH compared to those with higher income.[49] In the current study, the odds of poor SRH was higher (40% compared to 19%) among respondents with no income compared to respondents with higher income. However, the result was not significant. This could be due to income categories not being significantly different among each other. Other studies have reported respondents with chronic diseases and negative life events and females to have a higher odd of poor SRH similar to findings in the current study.[50]

Evidence-based cost-effective treatments for depression is available.[51] But a diagnosis of depression needs to be made for treatment to be given. However, poor recognition of the symptoms of depression[52,53] and low rates of identification in health care systems are major barriers for management of depression.[19] Identifying individuals with depression in the community or health care system is crucial to reduce the associated disability.[54]

The key finding in this study is that respondents with poor SRH in the follow-up round had 35% higher odds of having depression in the baseline after controlling for all common socio-demographic determinants of SRH. Having poor SRH could mean underlying depression. SRH is a simple and easy to use tool and may facilitate in the process of identifying individuals with depression. Utilizing non-health professionals like community health workers is worthwhile as there is an acute shortage of professional human resources in mental health.[55,56] There is ample evidence from research and implementation to show that community health workers (CHWs) have contributed immensely in combating major health issues like reduction of maternal and child mortality rates across the globe through appropriate training, support and

supervision.[57-61] Trials conducted in India and Pakistan have found that evidence-based psychological treatment recommended by the World Health Organization can be delivered by peers for perinatal depression and that is cost and time effective.[62]

The strengths of the study are as follows: (i) fairly large sample size; (ii) longitudinal study design specified the direction of association between the predictor and out-come variable; and (iii) respondents have been selected from across the country that make the findings more representative of the population. However, the study has a number of limitations. One of the limitations in this study is that respondents were followed only for one year. Although selection of households in the villages were randomized, selection of the study sites and the villages were not completely randomized. Moreover, we used self-reporting tool to assess the health status; some participants might be biased towards answering the question.

Conclusion

SRH in follow up round was found to be significantly associated with depression in baseline. SRH is a one item, simple to use tool. In the face of poor recognition of symptoms, low rates of identification in the health care system and shortage of human resources in mental health, non-health professional may be trained to use SRH to screen people in the community or health care systems with poor SRH followed by guidelines for further screening and management for depression. Further research need to be done to check the feasibility of using SRH to identify depression.

Competing interest

The authors declared that there is no conflict of interest.

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