Evaluation of Physical and Mental Health Literacy among Korean Americans

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Background

- Nearly half of all American adults (90 million people) have difficulty understanding and using health information (low health literacy)
- Low health literacy is closely related to a high rate of hospitalization and use of emergency services among patients
- Low health literacy leads to billions of dollars in avoidable health care costs

(Institute of Medicine of The National Academies, 2004).

- Inadequate health literacy may contribute to individual's poor physical and mental health (Schillinger et al., 2002; Rhee, et al, 2016).
  - Chronic health conditions such as diabetes, arthritis, digestive disorders, or chronic bronchitis were found to be predictors of depression (Kim, et al., 2014).

- High prevalence of health and mental health problems among Korean Americans (KAs) has been reported, but relatively little is known about the physical and mental health literacy among KAs and its impact on their health outcomes.

Purposes of this study

- Evaluate KAs' knowledge of self physical and mental health (depression),
- Determine whether there is any significant correlation between;
  - ✓ their physical health and depression literacies,
  - ✓ sociodemographic characteristics and physical health literacy,
  - ✓ sociodemographic characteristics and depression literacy, and
  - ✓ depression and depression literacy.

METHOD

- This project was an exploratory study
- The sample inclusion criteria were;
  - ✓age 18 years and older,
  - ✓self-identified as a Korean descendent,
  - ✓able to read and write Korean or English fluently, and
  - ✓willing to participate in the study by filling out the survey questionnaires either in Korean or English by their preference.
- 681 KAs participated in the study
- Data were collected in January 2018 through May 2018.

Measures

- **Socio-demographic characteristics.**
- **Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff 1977):**
  - 20 items, rated on a 4-point scale from 0 to 3,
    - 0 = rarely or none of the time,
    - 1 = some or a little of the time,
    - 2 = occasionally or a moderate amount of time, and
    - 3 = most or all of the time.
  - The score range is 0–60 and higher scores indicate greater symptoms of depression.
- **Depression Literacy Questionnaire (D-Lit) (Griffiths,2004):**
  - 22 items and each item has one of three response options – true, false or don't know.
  - Scoring is calculated as one point per correct item, so maximum will be 22 points.
    - 1 = Correct answer,
    - 0 = Incorrect answer and don't know answer
  - Higher scores indicate higher mental health literacy of depression.
- ***One-question Health Literacy Scale (Wallace et al., 2006):*** ''How confident are you filling out medical forms by yourself?''
  - Rated on a 5-point scale response option from 1 to 5, where –
    - 5 = extremely confident,
    - 4 = quite a bit confident,
    - 3 = somewhat confident,
    - 2 = a little bit confident, and
    - 1 = not at all confident.

Data Analysis and Findings

- **correlation between;**

✓ physical health and depression literacies,

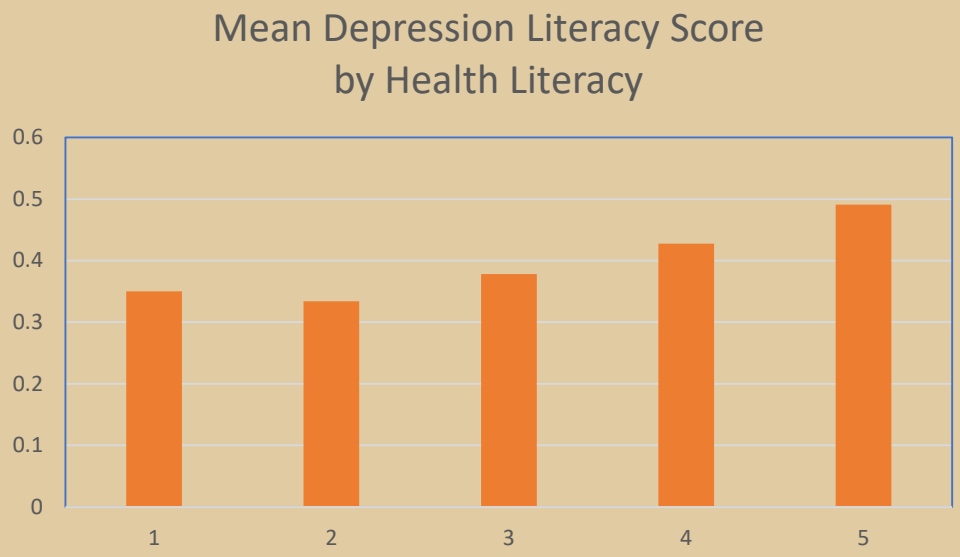
✓ depression and depression literacy

Correlation between Health Literacy and Depression Literacy

- One-way ANOVA results indicated the significant differences in mean depression literacy between 5 groups of health literacy ($F(4,622)=10.5$, $p<.0001$).
- Health literacy 1-3 didn't show changes, but at 4 & 5 health literacy level showed significant increase in depression literacy. (See the table).
- Positive correlation between Health literacy and depression literacy

Table Health literacy and mean depression literacy

Health literacy	Depression literacy
Not at all confident 1	0.3501
2	0.3342
3	0.3783
4	0.4275
Extremely confident 5	0.4909



Association between health literacy and depression literacy/depression

- The relative importance of depression literacy to depression level was calculated with a simple ratio of mean depression literacy to mean depression was calculated as shown in Table
- The relative weight of depression literacy to depression was lowest as .3158 at health literacy 1.
- Findings indicate that

Health literacy	Depression	Depression literacy /depression
1	1.1086	0.3158
2	0.9500	0.3518
3	0.8675	0.4361
4	0.7263	0.5885
5	0.6421	0.7646

Association between depression and depression literacy may change with age

- The average level of depression increased with age except 18-20 age group.
- The mean depression literacy decreased with age.
- The simple ratio of depression to depression literacy showed the widening gaps (in other words, relative level of depression literacy to depression level).

Table Depression literacy and depression by age group

Age	Mean Depression literacy	Mean Depression	Mean depression literacy/depression
18-20	0.5223	0.8640	0.604459
21-30	0.4582	0.6928	0.661391
31-40	0.4841	0.6662	0.726693
41-50	0.3934	0.7369	0.533843
51-60	0.3683	0.7494	0.491378
61-70	0.3573	0.8162	0.437706
80+	0.2651	1.0158	0.260935
Total	0.4130	0.7806	

Findings of Sociodemographic categories

correlation between;

- ✓Sociodemographic characteristics and physical health literacy,
- ✓Sociodemographic characteristics and depression literacy,

Ordinal logistic regression of health literacy

- The significant sociodemographic variables were:
  - Religion ($\chi^2(4) = 11.04$, $p=0.0261$),
  - English proficiency ($X^2(3) = 28.89$, $p<0.0001$),
  - Income ($X^2(6) = 13.81$, $p=0.0319$),
  - Education ($\chi^2(3) = 18.87$, $p=0.0003$),
  - Perceived physical health.
- The following were determined to be significant predictors in the model:
  - Religion ($F(4, 443) = 2.71$, $P= 0.0299$),
  - English proficiency ($F(3, 443) = 10.56$, $P<.0001$),
  - Income($F(6,443) = 2.67$, $P=0.0150$)

A multiple linear regression model of depression literacy:

- Age, language and education were significant.
  - Education ($F(3, 487) = 3.22$, $p = 0.0224$).
  - Estimated regression coefficient of age variable was negative as expected.
- Other sociodemographic variables in the health literacy regression model were not significant.

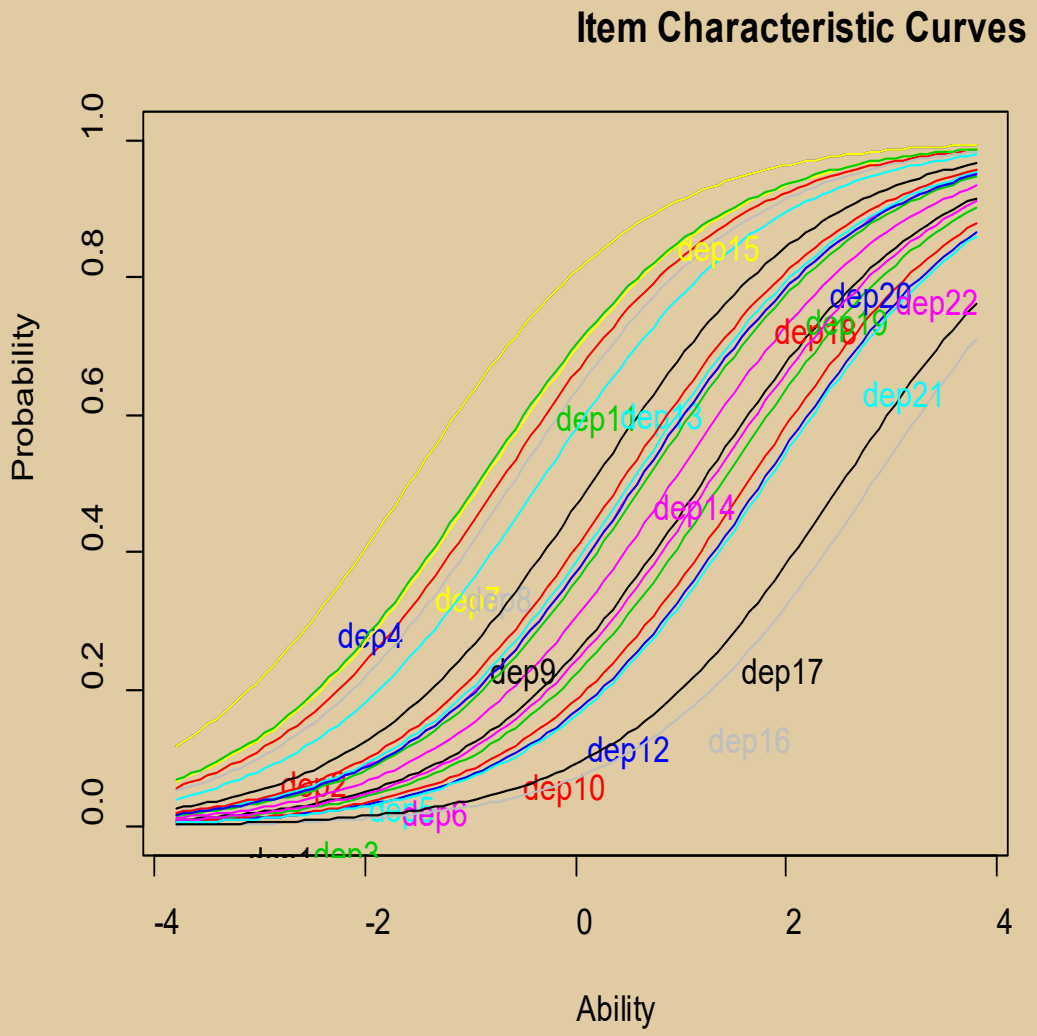
Subgroup Identification of Depression Literacy level

- To identify high risk group with low depression literacy score, the CART (Classification And Regression Tree) method as one of the most popular data mining method was applied to the survey data. The method identified 8 subgroups using 5 predictors consist of:
- Age,
- Education,
- English proficiency,
- Income, and
- Length of living in U.S.

Age	Education	Language	Income	Living in U.S.	N	Mean Depression literacy score
>82					28	0.203972
50-82	Less College				137	0.31597
	College		less $50,000		129	0.360976
	College		$50,000+		103	0.439873
<50		Korean		<20	163	0.476509
		Korean		20-29	46	0.385328
		Korean		>29	10	0.659091
		English			73	0.567693

Rasch analysis of depression literacy scale

- Rasch analysis has been known well accepted robust measurement assessment method.
- For depression literacy scale has been rarely evaluated for the appropriateness of unidimensional scale.
- The estimated item difficulty:
  - The item 16 was the most difficult, followed by item 17. The item 15 was the easiest item.
  - 15. Many famous people have suffered from depression. (True)
  - 16. Many treatments for depression are more effective than antidepressants. (False)
  - 17. Counselling is as effective as cognitive behavioral therapy for depression. (False)



Summary

- Positive correlation between Health literacy and depression literacy
- Significant correlation between **health literacy** and sociodemographic variables were;
  - religion,
  - English proficiency,
  - income,
  - education,
  - perceived physical health.

- Significant correlation between **depression literacy** and sociodemographic predictors of :
  - Age,
  - Education,
  - English proficiency,
  - Income,
  - Length of living in U.S.

Bonus Finding

Evaluation of Depression literacy scale to develop a Korean version of depression literacy scale for future psychometric property testing.

Thank You