

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_433_22

Development of attributes and levels of mental health insurance services using a discrete choice experiment

Hojjat Rahmani, Hamid Talebianpour, Sayedeh Elham Sharafi¹, Rajabali Daroudi, Ebrahim Jaafari-pooyan

Abstract:

BACKGROUND: Despite the fact that mental illness is among the ten top diseases with the highest burden, the health services required by these patients do not have adequate insurance coverage. The purpose of this study is to develop the attributes and levels of mental health insurance services using a discrete choice experiment (DCE).

MATERIALS AND METHOD: This study involved a qualitative phase of the DCE that was conducted in Iran in 2020-2021 and included several stages. First, during a literature review, the attributes and levels were determined. Then, the attributes of health insurance were identified and weighed through virtual and in-person interviews with 16 mental health insurance professionals and policymakers in this field who were selected by purposive sampling. Finally, after a few sessions, through review studies, interviews, and a group of the expert panel, attributes and levels were finalized.

RESULTS: This study showed that coverage of inpatient services, outpatient services, place of receiving services, use of online internet services, limitation of services, and monthly premiums were the most important attributes of mental health insurance services.

CONCLUSION: To promote mental health insurance, policymakers and health insurance organizations should pay attention to premiums to be commensurate with the payment of people, packages of mental health services, and the ability of people to pay in appropriation with inflation. Identifying these attributes can determine people's willingness to pay and preferences for mental health insurance and lead to better planning for more comprehensive coverage for patients and increase the desirability of individuals in receiving services.

Keywords:

Attributes and levels, discrete choice experiment, mental health insurance, mental preferences

Department of Health Management and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran, ¹Psychosomatic Research Center, Department of Psychiatry, Tehran University of Medical Sciences, Tehran, Iran

Address for correspondence:

Dr. Hamid Talebianpour, Faculty of Public Health, Enghelab Square, North Kargar Street, Tehran, Iran. E-mail: hamidtalebianpur71@gmail.com

Received: 26-03-2022

Accepted: 18-07-2022

Published: 28-04-2023

Introduction

In Iran, the burden of mental illness is heavy and, due to the lack of coverage of many psychological services for the population covered by the health care system and also due to structural weaknesses in the service delivery system and lack of content of mental health programs, it is necessary to pay attention to these illnesses.^[1,2] People often cite worries about the cost of care or limitation of coverage of health insurance as the reason for not receiving mental health

care. Also, lack of insurance reduces service delivery.^[3,4] People with mental illness had less health insurance than people without mental health problems.^[5] Lack of adequate and high out-of-pocket (OOP) insurance prevents people from receiving basic health services. In turn, this may lead to miserable health costs in the future, leading to poverty and diseases.^[6,7] For example, a study conducted by Rachel L. Garfield *et al.*,^[5] in the USA found that at least 37% of adults of working age with severe mental diseases, did not have insurance for a year, compared to healthy people, about 28%

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Rahmani H, Talebianpour H, Sharafi SE, Daroudi R, Jaafari-pooyan E. Development of attributes and levels of mental health insurance services using a discrete choice experiment. *J Edu Health Promot* 2023;12:134.

of who did not have insurance. A study conducted by William S. Pearson *et al.*,^[8] found that even after controlling for demographic differences, people with severe mental problems were 40% less likely to have health insurance than those without mental problems. Research by social policymakers showed that different demographic and ideological backgrounds affected the criteria for access to health services. Hence, people's access to services was affected not only by the attributes of service providers but also by the attributes of service recipients. However, the evidence proves that these attributes were related to the opinions of service recipients. For example, income or education levels were both positively and negatively related to the well-being of individuals, in which an inverse relationship between income levels and the welfare state was explained by this theory. It is possible that people with lower incomes were more dependent on the healthcare system and therefore it is important to support these people.^[9]

The financial challenges of the healthcare system and the poor design of insurance programs were among the most important issues that limit successful financial support and service delivery in Iran.^[7] The demand for health insurance largely depended on its ability to meet the needs, expectations, and preferences of the consumers.^[10] Health professionals and policymakers should evaluate health services and interventions so that they can replace treatment services and methods, if necessary.^[11] In order to replace a successful and effective medical intervention or method with other interventions, the preferences of patients and stakeholders must take into account so that the replacement could be done properly.^[12] It seems that models and solutions should be provided so that all patients can access the best services at the most appropriate time.^[13]

The Discrete Choice Experiment (DCE) is used to support the prioritization, design, and implementation of such interventions.^[14] DCE is a qualitative, attribute-based technique used to select announced preferences for new products and interventions that are not yet introduced to the market.^[15] DCE is a research method that can determine patients' preferences and factors influencing decision-making addressing the treatment. DCE was originally used for the arts, industry, and economics, but over time it has entered the healthcare sector and was exploited there.^[16,17] Previous research showed that DCE was appropriate and reliable for effective decision-making and policy-making in healthcare.^[18]

Due to the lack of financial and human resources for providing mental care, the way of allocating available resources for existing services and other competing services should be designed in a way that it could have the necessary quality. To address this dilemma,

the Ministry of Health led commissions and health service providers to implement national service models, standards, and guidelines, as well as to make local and clinical management decisions based on the best evidence. The best evidence includes information on the cost-effectiveness of services, needs assessment, as well as the preferences of experienced people related to mental health services. This process has grown over the past 20 years by participating in decision-making and taking into account citizens' views of communities and service users.^[19]

Given the limited scientific evidence on the attributes of mental health insurance, the importance of this evidence for health insurance policymakers and for the creation of a dynamic insurance mechanism tailored to the preferences of the people, implementing an accurate and comprehensive study on the attributes and levels of the mental health insurance are critical. There was no similar study in Iran for determining such attributes; therefore, this study was to develop attributes and corresponding levels to identify people's preferences respecting mental health insurance.

Materials and Method

Study design and setting

In this research, we tried to determine the attributes and levels related to mental health insurance using the DCE method and to determine the most important among them and their order of priority. Two issues clearly needed to be considered when determining the components - first, the components must be relevant to the needs and requirements of policymakers, and second, the components must be meaningful and important to the respondents.^[20] To ensure that these requirements were met, it was important to obtain as much information as possible from a variety of sources including literature reviews, group discussions (such as focus groups), interviews with key people such as policymakers, and expert opinion. Although there was no general rule for choosing the number of components, there was a consensus^[21] that the number of components should not exceed a maximum of eight components. If the components were not specified correctly in a study, the results of the study will be incorrect and misleading. Identification of attributes is done through various methods such as literature review, group discussion, interview, and expert panel or a combination of these methods.^[22]

This research was conducted in several stages. In the first stage, a domain review study was conducted on topics related to mental health insurance preferences in order to collect the attributes and levels which were identified in the relevant studies. This method was used due to some

limitations such as a lack of study resources related to the attributes of mental health insurance and the urgent need of managers or policymakers.^[21]

In the first step of this research, the Arksey and O'Malley protocol was used to review the domain, which includes six steps: 1- Identifying research questions; 2- Identifying related studies using valid databases, reviewing gray literature, dissertations, reviewing articles, and reference of studies in the field of research; 3- Selecting related studies among the included studies to be reviewed; 4- Extracting data in the form of graphs and tables; 5- Collecting, summarizing and reporting the findings; and 6- Consulting with experts about the obtained findings.^[23]

To conduct the review, the researcher completed the search based on the keywords consisting of "insurance", "universal insurance coverage", "insurance preferences", and "mental health insurance", through international databases such as PubMed, Scopus, and Web of Science.

Subsequently, studies that evaluated the preferences of individuals with health insurance or healthcare were included in the study using the DCE method, if they were of acceptable quality based on the evaluation list of DCE studies.^[12] In general, the inclusion criteria that were considered for this study were: 1- The language of the article or document should be Persian or English; 2- The study period should be 1970 to 2021; 3- The assessment of mental health insurance preferences in the community; 4- They must have used the DCE method; 5- It should be original research; 6- The full text of the article or document should be available. On the other hand, studies that were a review, a letter to the editor, or a short report were excluded from the study.

Study participants and sampling

In the second step, semi-structured interviews with semi-open questions were conducted with experts in the field of mental health insurance and mental health. In order to comply with ethical issues, in addition to general cases, identification codes were assigned to identify individuals. The mentioned individuals were included in the study and the interviews continued until the data was saturated. In this study, the sampling method, like most other qualitative studies, was purposive. A total of 16 experts with sufficient knowledge and experience were included in the study. Thematic analysis was used to analyze the data. In the end, the interviews were coded and key points were extracted to determine the attributes and levels.

The sample size was determined using the purposive sampling method with saturation criterion.^[24] Interviews were conducted from January to May 2021 and

audio recording was used with the permission of the interviewees. The interview questions were designed in such a way that experts were indirectly asked about the attributes of health insurance. The content of the questions was related to understandable attributes of ideal health insurance, the strengths, and weaknesses of current health insurance, important factors influencing the willingness to pay for health insurance, comprehensiveness of services, services coverage, people's access, and expectations from their mental health insurance. At the end of the interviews, the important attributes of health insurance were extracted.

Data collection tool and technique

In the third step, a list of attributes and levels that were prepared in the previous stages were scored based on the opinions of experts.^[25] Then, these attributes and levels were prioritized and ranked by 16 experts in the field of mental health. Each attribute was rated using a scale of 1 to 5, with 5 representing the highest score and 1 representing the lowest score. Then the total score of each attribute was calculated. Then, the responses of each level were summed to determine the levels of each attribute. Based on the purpose of the study and the results of previous studies, we combined and summarized the levels.^[26] The level of premium, as one of the final attributes, was selected based on the inflation rate and the current average premium in the country. Also, the level of premium was set in the range that includes the minimum, average, and maximum possible premiums.

The design was constructed with a generic and D-efficient method. The D-efficiency for our design was 98.16. A total of 16 iterations were used to improve the efficiency of the design. The pilot of the choice set revealed that all the participants (insured persons) understood the tasks, attributes, levels, and instructions. Also, all the participants correctly answered the warm-up choice set. The average time it took to interview each insured person was about 15 minutes. Imaging or other methods for illustration of the final tasks were not needed.

Ethical consideration

The research proposal was approved by the Ethics Committee of Tehran University of Medical Sciences with the ID number IR.TUMS.SPH.REC.1400.032. Permission was obtained to record the experts' voices.

Results

In this study, eight articles^[27-34] that used the DCE method and simultaneous analysis to extract attributes and levels, were selected for domain review. In these studies, the minimum number of attributes was five^[27-29] and the maximum number of attributes was twenty.^[30] In Table 1 and the review phase, we observed that none of the

studies directly and separately obtained the attributes of mental health insurance [Table 1].

Interviews with experts

At this stage of the research, 16 mental health insurance experts, psychiatrists, and officials related to mental illness were interviewed. In these interviews, most experts discussed service access, service quality, premiums, service coverage levels, how services are provided, and service strengths and weaknesses. The insurance attributes mentioned in these interviews included a health benefits package and the use of electronic services for patients. Attributes that the interviewees emphasized were: coverage of outpatient and counseling services, coverage of hospitalization costs, especially long-term hospitalization costs, the right to choose the type of service providers (private and public), coverage of imported drugs costs, coverage of laboratory and diagnostic costs, coverage of consultation costs, and coverage of para-clinical services.

Finally, after interviews and surveys of experts, the final attributes for extracting people's preferences were identified. Then, the final attributes obtained from the interviews were categorized into monthly premium, how to care, how to provide services, payment of subsidies for services, service providers, coverage of consulting services, place of service, number of sessions per month, coverage of hospitalization costs, medication costs, full coverage of diagnostic tests, coverage of imported drugs [Table 2].

Weighing attributes and levels of insurance by specialists

A total of 23 attributes were extracted from the narrative review and interviews, which were rated by insurance experts. A total of 12 attributes were mentioned in both resource reviews and interviews. Of these 12 attributes, six entered the final scenarios. Attributes such as cost of the number of care hours per week, access to transportation services, how to care for the patient, how to provide services, scheduling of providers, treatment priorities, the amount of subsidy payment for each service, review of the cost of treatment effectiveness, online delivery, and electronic services, how to provide patient information and medication information, behavioral health screening, staff availability (providers), out-of-pocket payments, medication costs, waiting time for services, counseling services (being online), and diagnostic tests did not obtain the required score for study attributes. Six attributes of inpatient service coverage, outpatient service coverage, place of receiving services for patients, use of online internet services, service delivery limitation, and monthly premium after weighing and considering the opinion of the research team were selected as the final attributes. The primary

attributes resulted from the review and interviews with insurance professionals and the final attributes selected after ranking by the experts are listed in Table 2.

Finally, 30%, 70%, and 90% coverage for inpatient and outpatient costs were selected as the levels of these attributes. For the service location, there were levels of service delivery in the public sector and service delivery by all providers. *Yes* and *no* levels were considered for using the internet and online services. *Yes* and *no* levels were considered for whether the services should have a limitation. Premium levels were determined as 40 thousand Tomans, 80 thousand Tomans, 120 thousand Tomans, and 200 thousand Tomans [Table 3].

Discussion

The aim of this study was to extract the attributes and levels of mental health insurance using DCE. The initial attributes were refined through several suitable filters. Based on the findings of this study, the most important attributes of mental health insurance were obtained and we developed them. What makes the results of this study important is to the best of our knowledge, that this study is the first study that extracts the attributes and insurance levels of mental health services in Iran and the world.

Based on the findings of this study, the most important attributes of mental health services insurance include inpatient service coverage (including three levels of 30%, 70%, and 90%), outpatient coverage (including three levels of 30%, 70%, and 90%), place of service (including two levels of public sector and all providers), use of online and internet services (including 2 levels of *yes* and *no*), services with a limitation (including 2 levels of *yes* and *no*) and monthly premiums (including 4 levels of 40 thousand Tomans, 80 thousand Tomans, 120 thousand Tomans, and 200 thousand Tomans).

It is important to note that the conditions of each country are different from other countries in terms of health insurance attributes. To this date, no in-house study on mental health insurance preferences had been conducted, and there were few studies in other countries on medical preferences which were used in this study. Complementary methods such as qualitative methods like interviewing were used to confirm the selected attributes and levels, which helps to complete the list of attributes and finalize them. Also, they have used to adjust the attributes according to the conditions of the target community.^[26]

In this study, the DCE method was used to determine the attributes and levels of mental health insurance preferences. This method was derived from research in the field of business and health economics and is

Table 1: Final studies from resource review

Row	Author(s) (year of publication)	Study aim(s)		Attributes
1	Nieboer (2010)	Preferences for long-term care services: Willingness to pay estimates derived from a discrete choice experiment ^[31]	Number of hours of care per week Organized social activities Transportation service Living situation Who provides care	Individual preferences Coordinated care services delivery Punctuality The waiting list in months Co-payment per week
2	Defechereux (2012)	Health care priority setting in Norway a multicriteria decision analysis ^[32]	Severity of disease Number of potential beneficiaries Age of target group	Individual health benefits Willingness to subsidize Cost-effectiveness
3	Becker (2016)	Preferences for Early Intervention Mental Health Services: A Discrete-Choice Conjoint Experiment ^[29]	Making initial contact with the service Context of the EIS Service decision making	Provided by the service Evidence of service efficacy
4	Cunningham (2008)	Modeling the Information Preferences of Parents of Children with Mental Health Problems: A Discrete Choice Conjoint Experiment ^[30]	Understanding versus solving child's emotional problems Understanding versus solving child's behavioral problems Effect on feeling informed about my child's problems Effect on confidence and hopefulness Developing advocacy skills Evidence base of information Effect on stress guilt and anxiety Epidemiology Active versus passive learning materials Who recommends information	Information about medication timing when information is available Individual versus group presentation Group and phone support Location of information Modality in which information is presented Pulling versus pushing information Content selection process Time demand to acquire and use information Specificity to child and family Content attributes
5	Cunningham (2014)	Modeling the Mental Health Practice Change Preferences of Educators: A Discrete-Choice Conjoint Experiment ^[28]	Contextual and social attributes Practice change process attributes	Content attributes
6	Herman (2016)	Patient Preferences of a Low-Income Hispanic Population for Mental Health Services in Primary Care ^[33]	Location of behavioral health treatment Language/culture Appointment for behavioral health referral Treatment preference	Other behavioral health-related services offered Screening for behavioral health issues Treatment follow up Family involvement
7	Cunningham CE (2013)	Modeling Mental Health Information Preferences During the Early Adult Years: A Discrete Choice Conjoint Experiment ^[34]	Information content Acquisition process Outcome Self-assessment Help locating services Self-help skills Source of supporting evidence Treatment information Internet social networking	Recommendation (by) Level of anonymity Time demand Information format Advertising channel Information utilization support Informed and confident Symptom reduction Reduction in isolation
8	Townend (2002)	Establishing and quantifying the preferences of mental health service users for day hospital care: A pilot study using conjoint analysis ^[27]	Support Type of day hospital Staff availability	Planning care Information

relatively new to the topic of mental healthcare and insurance.^[35] Most DCE studies identify attributes based on literature reviews and interviews.^[36] A review of the literature assisted us in developing and arranging the list of attributes and levels in this study. The results of Coast *et al.*'s^[37] research showed that interviewing is

useful to develop attributes. Interviewing experts and asking them indirect questions about attributes allows the experts to fully express their views and avoid bias about specific attributes of health insurance. The results of these interviews also help in accuracy and appropriate knowledge of the attributes.^[37] The results of the study

Table 2: Attributes extracted from resource review and interview with experts and final attributes

Row	Attribute	Resources review	Interview	Final approval (Y/N)	Row	Attribute	Resource review	Interview	Final approval (Y/N)
1	Monthly premium	*	*	*	13	Place of receiving the service	*	*	*
2	Transportation services	*			14	Staff availability (based on place)	*		
3	How to care	*	*		15	Number of sessions per month	*	*	
4	How to provide service	*	*		16	Staff availability (based on time)	*		
5	Timing of providers	*			17	Cover outpatient costs	*		*
6	Therapeutic priority	*			18	Cover hospitalization costs	*	*	*
7	Pay subsidies for services	*	*		19	Cost of medicine	*	*	
8	Evaluating cost effectiveness	*			20	Online services	*		*
9	Service providers	*	*		21	Full coverage of diagnostic tests	*	*	
10	How to provide information to patient	*			22	Coverage of foreign drugs	*	*	
11	Screening for behavioral health cases	*			23	Service coverage must have a limitation	*		*
12	Coverage of consulting services	*	*						

Table 3: Extracted attributes for mental health services insurance

Row	Attributes	Level 1	Level 2	Level 3	Level 4
1	Inpatient service coverage	30%	70%	90%	-
2	Outpatient service coverage	30%	70%	90%	-
3	Place of receiving the service	Public sector	All providers	-	-
4	The use of online services	Yes	No	-	-
5	Services have a limitation	Yes	No	-	-
6	Monthly premium	40 th thousand Tomans	80 th thousand Tomans	120 th thousand Tomans	200 th thousand Tomans

of Hall *et al.*,^[38] the study of Ryan *et al.*^[15] and the study of Karyani *et al.*^[39] showed that the interviews and opinions of experts were appropriate for extracting the attributes and levels of efficiency. In this study, to complete the initial list, interviews with experts and a review of literature were used, and then, using the expert’s expertise, the attributes and levels of mental health insurance were weighed.

In Iran, many costs are related to expensive services, and patients are forced to pay for their treatment out-of-pocket.^[40] Managers and decision-makers of health services face difficult decisions to allocate cash and credit and must choose the most effective option between several treatment priorities and interventions. Furthermore, the priority of treatment should be addressed, so that it should be able to attract the public attention to itself.^[32]

Experts believed that due to the high cost of hospitalized mental health patients, as one of the most expensive services, appropriate coverage should be considered for these services. Given that in Iran there is a significant relationship between inpatient care and increased OOP payments, it is necessary to pay attention to this issue.^[41] Since services are provided in both the public and private sectors, there is a difference in the quality of service delivery between the two sectors.^[39,42] According to expert opinions, services in mental healthcare are

provided by both the public sector and a combination of the private and public sectors, the public sector, and all providers (public sector and a combination of private and public sector) were considered to provide services.

In a study in Thailand, Kuwawenaruwa *et al.* considered outpatient care costs, inpatient care costs, cost lost per day of hospitalization, health insurance premiums, and long-term care costs as health insurance attributes.^[43] In a study conducted in Ethiopia, the important attributes of health insurance were: coverage of inpatient services, type of provider, coverage of outpatient services, and coverage of drug costs.^[44] The study of Van den Berg *et al.*^[45] on the quality of customer services, considered premium and quality of health services as attributes of health insurance. Also, the results of the current research showed that the percentage of covering the costs of mental health patients is important.

The experts in this study believed that hospital admission is one of the costly services that require mental health insurance coverage. Evidence from Kavosi *et al.* and Karyan *et al.* studies reported the association between inpatient care and high OOP and catastrophic expenditures.^[39,41]

The results of Kuwawenaruwa study^[43] showed that outpatient expenses are one of the attributes of health

insurance. Our study also found this attribute for mental illnesses in Iran. The limited insurance coverage of outpatient services was identified as the weakness of the current Iranian insurance system. Therefore, people who use these services will have to pay high OOP costs. A previous study in Iran also showed the catastrophic health costs of inpatient care services for mental patients.^[41] The evidence on the coverage of these services indicates that the appropriate coverage can have a significant effect on the choice of health insurance and the search for services needed by the insured.^[46]

Herman's study showed that the place of service affects people's attitude towards the use of medical services.^[33] The results of the studies by Nieboer *et al.*,^[31] Becker *et al.*,^[29] Townend *et al.*^[27] showed that it is very important by which organizations or by who the healthcare is provided. It is believed that the private sector provides better services. More comprehensive insurance coverage in the private sector can lead many people to choose this type of insurance. Meanwhile, some evidence suggests that admission to private hospitals increases the probability of catastrophic costs.^[47] Therefore, our study considered public and public-private inpatient care coverage as separate attributes. People's preferences regarding private services can be considered as their perception of service quality. The results of the interviews with mental health professionals were also indicative of this fact.

The results of the studies of Nieboer *et al.*,^[31] Defechereux *et al.*^[32] showed that the amount of financial participation in paying the treatment costs of mental health patients is an important factor in determining the choice of insurance.

Defechereux *et al.*^[32] through a multicriteria decision analysis demonstrated that setting the service ceiling and payment for services are important attributes in choosing insurance. The results of the interviews with mental health professionals were also indicative of this fact.

Evidence from studies^[29,30] showed that access to the Internet has a positive effect on gaining knowledge about mental disease, increasing patient information, better access to mental health services, and improving the health of society and the people who use it.

Living with a person with a mental illness drastically reduces their quality of life, so the Willingness To Pay (WTP) for a mental disorder and the Willingness To Accept (WTA) is expected to be high in patients with the illness and their companions.^[47] Therefore, organizing the treatment of the mentally ill in order to improve the quality of clinical and therapeutic services for these patients is one of the requirements of health

development. Insurers can also solve many mental health problems by determining the appropriate premium.^[43]

Limitations and recommendation

Due to the fact that the interviews and data collection took place at the peak of the coronavirus pandemic in Iran, we faced many problems. Thus, more than half of the interviews were conducted virtual using Internet services.

Also, considering that limited studies have been conducted in Iran and even in the world respecting the development of attributes and their corresponding levels in mental disorders using DCE, it is recommended that future studies be conducted with similar methods for each mental disease.

Conclusion

The findings of this study show that the way of providing services, insurance benefits package and premiums are the most important attributes for mental health services that should be included in the design of packages related to the final attributes for the insured. To improve mental health and promote mental health insurance, insurers and policymakers must tailor their mental health service benefit packages and premiums to people's ability to pay and inflation.

Acknowledgements

This study was part of a Ph.D. thesis in the field of Health Economics in the Faculty of Public Health written by Hamid Talebianpour. This manuscript is supported and approved by the Tehran University of Medical Sciences with ID number 52634. The research proposal was approved by the Ethics Committee of the Tehran University of Medical Sciences with the ID number IR.TUMS.SPH.REC.1400.032. In addition, the authors would like to thank the Social Security Research institute.

Financial support and sponsorship

This study was part of a Ph.D. thesis supported by the Tehran University of Medical Sciences.

Conflicts of interest

There are no conflicts of interest.

References

1. Damari B, Mafimoradi S. Intersectoral expectations for promoting mental health: A qualitative case study of Islamic Republic of Iran. *Int J Prev Med* 2019;10:1-15. doi: 10.4103/ijpvm.IJPVM_406_17.
2. Lakshmana G, Sangeetha V, Pandey V. Community perception of accessibility and barriers to utilizing mental health services. *J Educ Health Promot* 2022;11:56. doi: 10.4103/jehp.jehp_342_21.
3. Jouyani Y, Hadiyan M, Salehi M, Souri A. Using discrete choice model to elicit preference for health-care priority setting. *J Educ Health Promot* 2019;8:117. doi: 10.4103/jehp.jehp_404_18.

4. Vuong DA, Flessa S, Marschall P, Ha ST, Luong KN, Busse R. Determining the impacts of hospital cost-sharing on the uninsured near-poor households in Vietnam. *Int J Equity Health* 2014;13:40. doi: 10.1186/1475-9276-13-40.
5. Garfield RL, Zuvekas SH, Lave JR, Donohue JM. The impact of national health care reform on adults with severe mental disorders. *Am J Psychiatry* 2011;168:486-94.
6. Murthy MKS, Kapaneer ARM, Desai G, Chaturvedi SK. Exploring the knowledge and attitude of public about mental health problems: A pilot intervention for effective mental health promotion. *J Educ Health Promot* 2019;8:177. doi: 10.4103/jehp.jehp_137_19.
7. Zeighami R, Oskouie F, Joolae S. Outcomes of parental mental illness on children: A qualitative study from Iran. *J Psychosoc Nurs Ment Health Serv* 2011;49:32-40.
8. Pearson WS, Dhingra SS, Strine TW, Liang YW, Berry JT, Mokdad AH. Relationships between serious psychological distress and the use of health services in the United States: Findings from the behavioral risk factor surveillance system. *Int J Public Health* 2009;54(Suppl 1):23-9.
9. Jæger MM. What makes people support public responsibility for welfare provision: Self-interest or political ideology? A longitudinal approach. *Acta Sociol* 2006;49:321-38.
10. Norman R, Viney R, Brazier J, Burgess L, Cronin P, King M, *et al.* Valuing SF-6D health states using a discrete choice experiment. *Med Decis Mak* 2014;34:773-86.
11. Bansback N, Brazier J, Tsuchiya A, Anis A. Using a discrete choice experiment to estimate health state utility values. *J Health Econ* 2012;31:306-18.
12. Bridges JFP, Hauber AB, Marshall D, Lloyd A, Prosser LA, Regier DA, *et al.* Conjoint analysis applications in health-A checklist: A report of the ISPOR good research practices for conjoint analysis task force. *Value Heal* 2011;14:403-13.
13. Rowan K, McAlpine DD, Blewett LA. Access and cost barriers to mental health care, by insurance status, 1999-2010. *Health Aff* 2013;32:1723-30.
14. Farley K, Thompson C, Hanbury A, Chambers D. Exploring the feasibility of conjoint analysis as a tool for prioritizing innovations for implementation. *Implement Sci* 2013;8.
15. Ryan M, Kolstad JR, Rockers PC, Dolea C. How to Conduct a Discrete Choice Experiment for Health Workforce Recruitment and Retention in Remote and Rural Areas: A user guide with case studies; The World Bank; 2012 Dec 20.
16. Louviere JJ, Lancsar E. Choice experiments in health: The good, the bad, the ugly and toward a brighter future. *Heal Econ Policy Law* 2009;4:527-46.
17. Karyan A, Rezaei S, Etesami S, Pezhman L, Matin B, Delavari S. Eliciting preferences of professors and medical group students for evaluation methods of theoretical courses: An application of discrete choice experiment analysis. *J Educ Health Promot* 2021;10:82. doi: 10.4103/jehp.jehp_540_20.
18. Clark MD, Determann D, Petrou S, Moro D, de Bekker-Grob EW. Discrete choice experiments in health economics: A review of the literature. *Pharmacoeconomics* 2014;32:883-902.
19. Aghakhani N, Park CS. Spiritual well-being promotion for older adults: Implication for healthcare policy makers' decision making on cost savings. *Journal of Education and Health Promotion*. 2019;8.
20. Bennett J, Blamey R, editors. The choice modelling approach to environmental valuation. Edward Elgar Publishing; 2001.
21. Hensher DA, Rose JM, Rose JM, Greene WH. Applied choice analysis: a primer. Cambridge university press; 2005 Jun 2.
22. De Bekker-Grob EW, Bliemer MCJ, Donkers B, Essink-Bot ML, Korffage IJ, Roobol MJ, *et al.* Patients' and urologists' preferences for prostate cancer treatment: A discrete choice experiment. *Br J Cancer* 2013;109:633-40.
23. Arksey H, O'Malley L. Scoping studies: Towards a methodological framework. *Int J Soc Res Methodol Theory Pract* 2005;8:19-32.
24. Guest G, Bunce A, Johnson L. How many interviews are enough? An experiment with data saturation and variability. *Field Methods* 2006;18:59-82.
25. Louviere JJ. Why stated preference discrete choice modeling is NOT conjoint analysis (and what SPDCM is?). *Memetrics white paper*. 2000 Jul; 1:1-1.
26. De Bekker-Grob EW, Ryan M, Gerard K. Discrete choice experiments in health economics: A review of the literature. *Health Econ* 2012;21:145-72.
27. Townend M, Shackley P. Establishing and quantifying the preferences of mental health service users for day hospital care: A pilot study using conjoint analysis. *J Ment Heal* 2002;11:85-96.
28. Cunningham CE, Barwick M, Short K, Chen Y, Rimas H, Ratcliffe J, *et al.* Modeling the mental health practice change preferences of educators: A discrete-choice conjoint experiment. *School Ment Health* 2014;6:1-14.
29. Becker MPE, Christensen BK, Cunningham CE, Furimsky I, Rimas H, Wilson F, *et al.* Preferences for early intervention mental health services: A discrete-choice conjoint experiment. *Psychiatr Serv* 2016;67:184-91.
30. Cunningham CE, Deal K, Rimas H, Buchanan DH, Gold M, Sdao-Jarvie K, *et al.* Modeling the information preferences of parents of children with mental health problems: A discrete choice conjoint experiment. *J Abnorm Child Psychol* 2008;36:1123-38.
31. Nieboer AP, Koolman X, Stolk EA. Preferences for long-term care services: Willingness to pay estimates derived from a discrete choice experiment. *Soc Sci Med* 2010;70:1317-25.
32. Defechereux T, Paolucci F, Mirelman A, Youngkong S, Botten G, Hagen TP, *et al.* Health care priority setting in Norway a multicriteria decision analysis. *BMC Health Serv Res* 2012;12:39. doi: 10.1186/1472-6963-12-39.
33. Herman PM, Ingram M, Rimas H, Carvajal S, Cunningham CE. Patient preferences of a low-income hispanic population for mental health services in primary care. *Adm Policy Ment Health* 2016;43:740-9.
34. Cunningham CE, Walker JR, Eastwood JD, Westra H, Rimas H, Chen Y, *et al.* Modeling mental health information preferences during the early adult years: A discrete choice conjoint experiment. *J Health Commun* 2014;19:413-40.
35. Ryan M, Gerard K, Currie G. Using discrete choice experiments in health economics. In *The Elgar Companion to Health Economics*, Second Edition 2012 Jan 31. Edward Elgar Publishing.
36. Abihiro GA, Leppert G, Mbera GB, Robyn PJ, De Allegri M. Developing attributes and attribute-levels for a discrete choice experiment on micro health insurance in rural Malawi. *BMC Health Serv Res* 2014;14:235. doi: 10.1186/1472-6963-14-235.
37. Coast J, Al-Janabi H, Sutton EJ, Horrocks SA, Vosper AJ, Swancutt DR, *et al.* Using qualitative methods for attribute development for discrete choice experiments: Issues and recommendations. *Health Econ* 2012;21:730-41.
38. Hall J, Kenny P, King M, Louviere J, Viney R, Yeoh A. Using stated preference discrete choice modelling to evaluate the introduction of varicella vaccination. *Health Econ* 2002;11:457-65.
39. Karyani AK, Rashidian A, Sari AA, Sefiddashti SE. Developing attributes and levels for a discrete choice experiment on basic health insurance in Iran. *Med J Islam Repub Iran* 2018;32:142-50.
40. Hajizadeh M, Nghiem HS. Out-of-pocket expenditures for hospital care in Iran: Who is at risk of incurring catastrophic payments? *Int J Health Care Finance Econ* 2011;11:267-85.
41. Kavosi Z, Rashidian A, Pourreza A, Majdzadeh R, Pourmalek F, Hosseinpour AR, *et al.* Inequality in household catastrophic health care expenditure in a low-income society of Iran. *Health Policy Plan* 2012;27:613-23.
42. Bridges JFP, Kinter ET, Schmeding A, Rudolph I, Mühlbacher A. Can patients diagnosed with schizophrenia complete choice-based

- conjoint analysis tasks? *Patient* 2011;4:267-75.
43. Kuwawenaruwa A, Macha J, Borghi J. Willingness to pay for voluntary health insurance in Tanzania. *East Afr Med J* 2011;88:54-64.
 44. Obse A, Ryan M, Heidenreich S, Normand C, Hailemariam D. Eliciting preferences for social health insurance in Ethiopia: A discrete choice experiment. *Health Policy Plan* 2016;31:1423-32.
 45. van den Berg B, Van Dommelen P, Stam P, Laske-Aldershof T, Buchmueller T, Schut FT. Preferences and choices for care and health insurance. *Soc Sci Med* 2008;66:2448-59.
 46. Hosseinpoor AR, Naghavi M, Alavian SM, Speybroeck N, Jamshidi H, Vega J. Determinants of seeking needed outpatient care in Iran: Results from a national health services utilization survey. *Arch Iran Med* 2007;10:439-45.
 47. Lungu EA, Obse AG, Darker C, Biesma R. What influences where they seek care? Caregivers' preferences for under-five child healthcare services in urban slums of Malawi: A discrete choice experiment. *PLoS One* 2018;13.