

## **A Scale Study on Perceptions of Disabled People about Health Services**

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**Abstract:** This study is designed to find out the relationship between benefits, problem solver quality, facilitating accessibility of provided health service and perceptions of disabled people about health services. This research was carried out with 140 disabled people, living in Eskişehir. The data was collected through "Perception Scale of Disabled about Health Services (PSDHS) developed by researchers. These data were analyzed with Second Order Confirmatory Factor Analysis by using the statistical package LISREL. The findings from the study revealed that the scale was valid and reliable and that benefits, problem solver quality, facilitating accessibility of provided health service affect directly perceptions of disabled people about health services.

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### **1. Introduction**

Health service is defined as; "protection of health and the total attempt to treat diseases" (Ateş, 2011:2). WHO defines the health service as the 'system organized permanently around country-wide to provide preventive and therapeutic services" (Şentürk, 2011: 52). Within the frame of these definitions, health service can be defined as;" the rehabilitation services and activities about the protection and improvement of mental and physical health of individuals" (Güzel, et al., 2010: 665-666). Within this definition, it is possible to define health services as three main title; preventive, therapeutic and rehabilitative health services.

Preventive health services are activities that prevent sickness or diagnose diseases early. Therapeutic health services, on the contrary to preventive health services, are the inspection and treatment services made after the diseases have emerged. Rehabilitation services are self-sufficient services that provide disabled people without being dependent on others.

In practice, preventive health services are provided by primary health care institutions and therapeutic health services are provided by secondary and tertiary health care institutions. Rehabilitation services are provided by primary health care institutions for preventive and educational purposes, and secondary and tertiary health care facilities for medical service.

In general, as the health services cannot be postponed and they are vital services, also the services are dependent upon the people who produce services, it is required that without any discrimination all people should benefit from these services (Ateş, 2011: 3-4). Therefore, disabled people should benefit from health services not exposing any discrimination because of their status. But in literature, there is no information about how the requirement of these services is satisfied. This situation requires the conditions of disabled people, whether their perceptions are differentiating by variables.

The primary goal of this study has two folds. One is to determine the perceptions about the services they received as disabled people when they apply to Health Administration of Eskisehir province; and, the second one is, to find out whether there is a causal link between the Facilitating Accessibility of Provided Health Service, Problem solver quality of Provided Health Service, Benefits of Provided Health Service and their perceptions about health services offered to them.

As a result of the study, perception determination and effective factors of beneficiaries about health services, definition of the policies about the quality improvement in health delivery and required legal arrangements will be determined if they are straightforward and easy. Thus, it is assumed that this study will be

directive to policy makers and legislators. This study will contribute to the existing national and international literature on this subject in light of its findings.

## **2. Method**

### **2.1. Research Model**

The study is based on comparative relational research model (Karasar, 2000) which is about to determine the perceptions of disabled people, who apply Health Administration of Eskisehir province, about the services they have and to determine whether these perceptions varies up to some qualifications such as gender, education, marital status, age and disability type.

### **2.2. Study Group**

Though there are many studies about the access to health services of disabled people in Turkey, it is seen that the sample based studies are limited. Therefore, the study which is made to determine the perceptions of disabled people about the health services delivered in Eskisehir province Health Administration, mainly focus on disabled individuals living in Eskisehir.

The universe of the study is the disabled individuals living in Eskisehir province, including districts, towns and villages of Eskisehir. According to this, the sample of study consists of 140 disabled individuals who applied Eskisehir province Health Administration. According the data, 71 of participants (50.70%) are female and the remaining 69 of participants (49.30%) are male. 9 participants are below age 18 and 27 participants are over 65 years of age. The remaining 104 of participants are aged between 18 and 65. Education level of 75 (53.60%) is primary and secondary school. Education level of 31 (22.10%) is high school. 13 of the participants are university graduates. 21 of participants are literate. When the marital status of the participants was examined, it was seen that 66 were married, 42 were single and 32 were widows. Income level of 72 (51.40%) is between 1001-1500 TL. Income level of 49 (35%) is between 501-1000. Income level of 17 (12.10%) is over 1501 and income level of only 1 disabled people is less than 500 TL. When the participants' handicapping conditions were examined, it was seen that 102 persons were physically disabled, 16 persons were visually impaired, 3 people were language and speech impaired, and 2 people were hearing impaired. 17 of participants were in other disability groups.

### **2.2. Data Collection**

The goals of this research require a measurement tool to determine the views on the determinants that affect the participations of disabled people about health services offered to them. Despite its importance in ensuring the equality of normal and disabled people access to health services and increasing the disabled people access to health services. In Turkey, scale based studies that are oriented towards determining the views on the determinants that affect disabled people access to health services are very limited. In today's world, equality of normal and disabled people in a society is very important; in this context, the lack of a measuring tool that works to determine the reasons behind disabled people access to health services is an important deficiency. To meet this deficiency and to define the views on the reasons behind disabled people access to health services, "Perception Scale of Disabled about Health Services (PSDHS) was developed. When establishing the items in this scale, a literature review was done on the fields of health, health services, quality in health care, access to health services for the disabled, to review the foreign or domestic researches done on the subject and the scales that were developed to measure the disabled people access to health services. As a result of the literature review, 17 perception items were selected; half of these items included the positive side of the perception dimension while the other half included statements on the negative side of the perception dimension. It was also ensured to include cognitive, emotional and behavioral statements. 7 of the statement items are on facilitating the accessibility of the offered health service, 5 of the statements are on the quality of the health services offered to solve the problems, and 3 of the statements are on the benefits provided by the health service.

### **2.3 The Validity and Reliability Study of Perception Scale of Disabled about Health Services**

The perception scale created after the literature review on the fields of health, health services, quality in health care, and access to health services for the disabled was examined by an expert in the context of language. The opinions of specialists working in universities were taken for content validity. In line with the reported opinions of the field specialists, the PSDHS has been given as its final form after necessary corrections were made by the determinants that affect the participations of disabled people about health services offered to them. Then, PSDHS was applied on 50 non-study group participants as a pilot study.

The participants were asked to grade every single one of the perception statements with one of the following categories by using a 5-point grading system: "strongly disagree - disagree- neutral- agreed - strongly agreed". To calculate a total for each of the participants, the most positive category was taken as 5 points and

the most negative category was taken as 1 point, and every question was given a grade between 1 and 5 (Turgut, 1977: 10, 11).

To determine the items that will make up the scale under development, an item-total correlation was calculated for each of the items working with the data gathered from the disabled people in question. In selection of the items, item total correlation coefficient higher than .20 is considered (Tavşancıl & Keser, 2002: 87). The result for the item analysis, which was done to assess the distinctiveness of the items in the scale, has showed that 17 of the items in the scale have an item-total correlation value higher than .20. This finding shows that every single one of these 17 perception statements has a distinguishing characteristic. The reliability factor of the whole scale was calculated as Cronbach  $\alpha$  = .85. This value is indicative of that the scale is reliable.

As a result of the preliminary test, it was seen that the items are clearly understood, albeit some of them needed changes in expression. The items in need of changes in expression were changed to give the data its final format.

PSDHS was applied to the pilot study group and then it was given to the 140 disabled people, who applicants of the Eskişehir Provincial Health Directorate. The Structural Equation Modeling (SEM) which was made up of three fundamental components was applied to the data used in the analysis for the data gathered from 140 disabled people to test the validity and reliability of the scale. The SEM is a method used in many disciplines today to resolve the research problems about causal links between latent structures measured by observed variables; that it is made up of three fundamental components, called the path analysis, conceptual synthesis of structure and measurement models and general prediction processes.

The goal of the path analysis is to predict the importance and size of the assumed causality links between the variables and also to make policy arguments. For this reason, this analysis' objective was to determine the relation series between cause and effect variables as it is important to know which variable or variables need to be considered as an effect variable.

The primary goal of this study is to find out whether there is a causal link between the facilitating accessibility of provided health service, problem solver quality of provided health service, benefits of provided health service and their perceptions about health services offered to them. to this end, the cause-effect relations must be established for the variables of the research, in other words, the SEM method must be established and a path analysis must be made. to meet this need, factor structures determined by the exploratory factor analysis (EFA) was exposed to second level Confirmatory Factor Analysis (CFA).

The SEM method was created to be a hybrid between two different statistical traditional models. Factor analysis, which is used by psychology and psychometrics, is the first statistical model. The other one is the equality model, which was initially used in the fields of genetics but developed concurrently in the field of econometrics (Çokluk, et al., 2010). The SEM is an extensive statistical technique that is used to test the causal relations between observed and latent variables. It is a systematic tool that is used in testing theoretic models and the assessment of relations between variables in fields such as econometrics, psychology, sociology, marketing and education sciences. The SEM assumes that there is a causality structure between latent variable sets and it also assumes that these latent variables can be measured through observed variables (Yılmaz et al., 2006: 172).

Furthermore, a factor analysis was used to determine the structure of the scale (Baykul, 2000, p. 389). Exploratory Factor Analysis (EFA), by definition is a statistical technique that aims to explain the structure of a measuring tool by bringing together all of the variables that measure the same structure or the same characteristic (Büyüköztürk, 2002, p. 117). The higher the variation rates calculated by the factor analysis, the stronger the scale's factor structure (Gorsuch, 1974; Lee & Comrey, 1979; Trans. Tavşancıl and Keser, 2002: 87). In social sciences, variation rates between 40% and 60% are considered sufficient (Scherer, et al., 1988. Trans. Tavşancıl and Keser, 2002: 87). When distinguishing items that do not measure the same structure; the basis was the items having a factor load of at least .45 and being under a single factor (if the item has high factor load under two factors, the difference must be at least .10) while paying attention to items having high factor load under the factor they are under, while also making sure that item has a high factor load under only a single factor (Büyüköztürk, 2002: 118, 119). When distinguishing items that do not measure the same structure in the factor analysis; the importance was placed on the items having a load value above .45 under the factor they are placed in. Using these criteria, items that have variation values over .40 but factor load below .45 in the applied Principal Component Analysis (PCA), namely item8 was removed from the scale, leaving only 16 items.

The 16 items in which PCA applied are gathered under 3 factors that have item eigenvalues higher than 1.00. Therefore, PSDHS can be considered as 3 factored. The total variation explained by these 3 factors is 50.85%. According to the PCA, the first factor has an eigenvalue of 5.10 and expressed variation of 31.87%, the second factor has 1.84 eigenvalue and 11.52% variation and the third factor has an eigenvalue of 1.19 and variation of 7.47%. The average variation of the three factors defined in relation to the items varies between .40 and .63 (Table 1). The results indicate that there are three factors determined as important. These factors in the analysis do in fact explain a significant portion of the total variation in the items and the scale related variation.

Items with factor load values above .45 were taken, and, according to this criterion, there are 16 items under the first factor and the first factor's load values vary between .46 and .72. This situation shows that PSDHS has a general factor. The fact that the first factor expresses 31.87% variation in the PCA is another indicator.

When the results of the item analysis completed to assess the distinctiveness of the items in the scale are examined, it was noted that the item-total correlation factor varies between .38 and .61. This finding demonstrates that 16 perception statements all have distinguishing characteristics. The reliability factor for this criterion was calculated as Cronbach  $\alpha = .85$ . This can be interpreted as the criterion being reliable.

Since PSDHS is three factored, varimax technique was used as a rotation process to determine the items that have high relations with the factors and also to make interpretation of these relations easier (Büyüköztürk, 2002: 120). Table 1 contains the item-total correlation factors for the varimax rotation done to examine PSDHS's factor constructs, the results of the principal components analysis and the load values on the four factors.

Table 1 also consolidates factor loads of the four items under the first factor varies between .65 and .78; factor loads of the three items under the second factor varies between .71 and .84; factor loads of the four items under the third factor varies between .56 and .74. These findings show that the scale is made up of items that have high relations with each other and it measures the structure which is defined as the views on the reasons that affect women's participation in the workforce. The first factor expresses the 41.04% of total variation related to the scale, the second factor expresses 11.68% and the third factor expresses the 9.17%. Total expressed variation by these factors is 61.89%. Average variation expressed by these three factors varies between .47 and .74. These findings show that factor structure of the scale is strong.

Factors were named according to the meanings of the items that they contain. First factor is named "External Factors that Limiting to Female Participation to the Labor Force"; second factor is named "Internal Factors that Limiting to Female Participation to the Labor Force" and the third factor is named "Negative aspects of working for Female".

**Table 1.** Basic Components Analysis and Varimax Rotation Results

Order No:	Item No:	Item-Total Correlation Coefficient:	Common Factor Variance:	After Rotation Factor Load Value			
				Factor-1 Load Value	Factor-1	Factor-2	Factor-3
1	M7	.59	.59	.71	.23	<b>.64</b>	.36
2	M9	.37	.53	.50	.11	<b>.72</b>	-.03
3	M11	.48	.47	.54	<b>.65</b>	.24	-.02
4	M12	.49	.54	.54	<b>.72</b>	.13	.02
5	M13	.38	.43	.50	.06	<b>.63</b>	.15
6	M14	.46	.45	.50	<b>.63</b>	-.00	.22
7	M15	.56	.62	.65	<b>.63</b>	.46	-.07
8	M16	.50	.52	.55	<b>.69</b>	.03	.21
9	M17	.52	.48	.63	.20	.40	<b>.52</b>
10	M18	.53	.41	.62	<b>.49</b>	.24	.33
11	M19	.41	.65	.53	-.00	.27	<b>.76</b>
12	M20	.44	.59	.58	.06	<b>.75</b>	.16
13	M21	.47	.47	.60	.12	<b>.57</b>	.35
14	M22	.48	.57	.57	.23	.13	<b>.71</b>
15	M23	.43	.51	.48	<b>.55</b>	-.13	.44

**Explained Variance:**

**Total = % 52.08; Factor-1 = % 32.24; Factor-2 = % 11.93; Factor-3 = % 7.91**

**Cronbach  $\alpha = .84$**

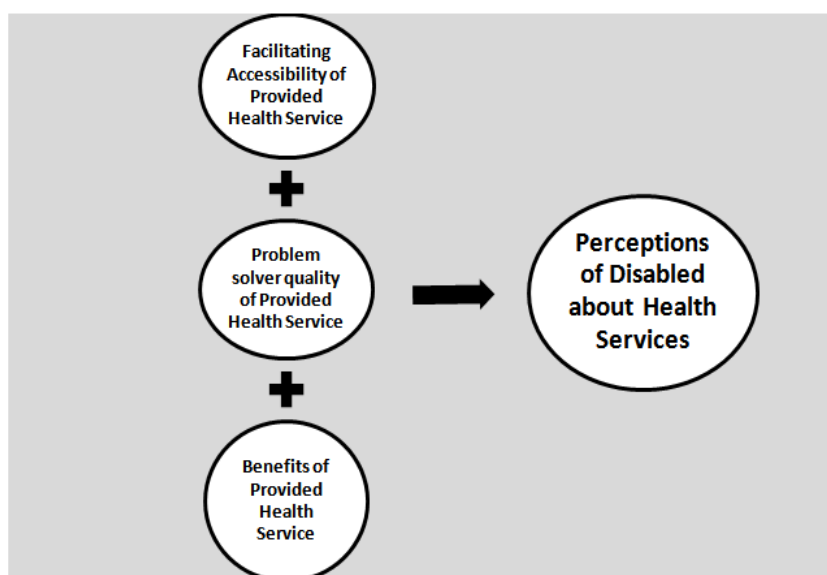
When distinguishing items that do not measure the same structure; the basis was the items having a factor load of at least .45 and being under a single factor (if the item has high factor load under two factors, the difference must be at least .10) while paying attention to items having high factor load under the factor they are under while also making sure that item has a high factor load under one factor and a low factor load under all other factors (Büyüköztürk, 2002: 118-119). Remaining 11 item's distribution according to the factors is presented in the Table 2. Using this criterion, item 10 was removed from the scale, leaving only 15 items.

**Table 2.** Remaining 15 Items Distribution According to the Factors

Factors	Items
1. Factor: Facilitating Accessibility of Provided Health Service	11, 12, 14, 15, 16, 18 and 23
2. Factor: Problem solver quality of Provided Health Service	7, 9, 13, 20 and 21
3. Factor: Benefits of Provided Health Service	17, 19 and 22

When the item analysis is completed to assess the distinctiveness of each of the items in the scale was examined, it was seen that item-total correlations vary between .37 and .59, which is a high value. This finding shows every single one of the 15 perception statements have a distinguishing characteristic. The reliability factor for the whole scale was calculated as Cronbach  $\alpha=.84$ . When the results of the analysis done to assess the distinctiveness of the items in the factor named “Facilitating Accessibility of Provided Health Service”, it was noted that item correlation factor calculated for each of the items varied between .45 and .55. First factor’s reliability factor is Cronbach  $\alpha=.78$ . When the results of the analysis done to assess the distinctiveness of the items in the factor named “Problem solver quality of Provided Health Service”, it was noted that item correlation factor calculated for each of the items varied between .48 and .61. Second factor’s reliability factor is Cronbach  $\alpha=.77$ . When the results of the analysis done to assess the distinctiveness of the items in the factor named “Benefits of Provided Health Service”, it was noted that item correlation factor calculated for each of the items varied between .44 and .48. Second factor’s reliability factor is Cronbach  $\alpha=.65$ . These values can be interpreted as the scale being reliable.

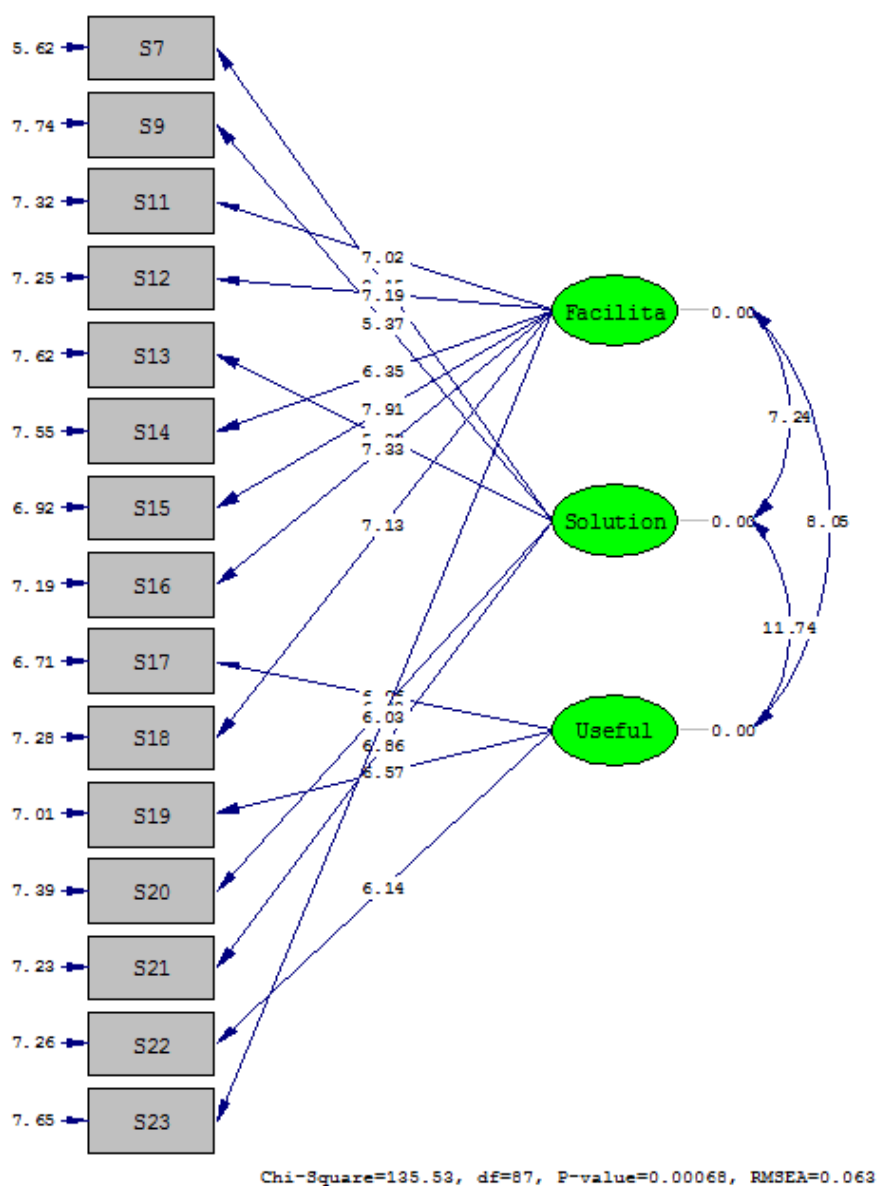
**Confirmatory Factor Analysis (CFA):** As stated previously, the factor structures that were defined by the EFA was exposed to CFA. But, before the application of the CFA, the SEM model was defined according to the structures of the determined factors to make the analysis of PSDHS’s validity and reliability, and to determine how well does PSDHS explain the three latent variables of perceptions of disabled about health services. The Figure 1 lays out the model that explains the relationship between facilitating accessibility of provided health service, problem solver quality of provided health service and benefits of provided health service.



**Figure 1.** The Proposed Model

As seen in Figure 1, the paths that are shown as the one way arrows between the variables in the SEM are actually the hypotheses of this study. According to this, variables such as facilitating accessibility of provided health service, problem solver quality of provided health service and benefits of provided health service affect perceptions of disabled about health services. In the model, the variables that were predicted to affect perceptions of disabled about health services were designed as independent latent variables while perceptions of disabled about health services was designed as dependent latent variable.

To make validity and reliability analyses for the PSDHS and to determine how good does the three latent variables explain the perceptions of disabled about health services, in other words, to determine the relationship between the perceptions of disabled about health services and three latent variables, second level CFA was applied to the data group, and the path diagram for the PSDHS scale was given out in the Figure 2.



**Figure 2.** Relevance Levels of the Latent Variable's Explanation Rates of the Observed Variables for the Three Dimension Model

Figure 2 lays out the relevance levels of the latent variable's explanation rates of the observed variables for the PSDHS's three dimension model.

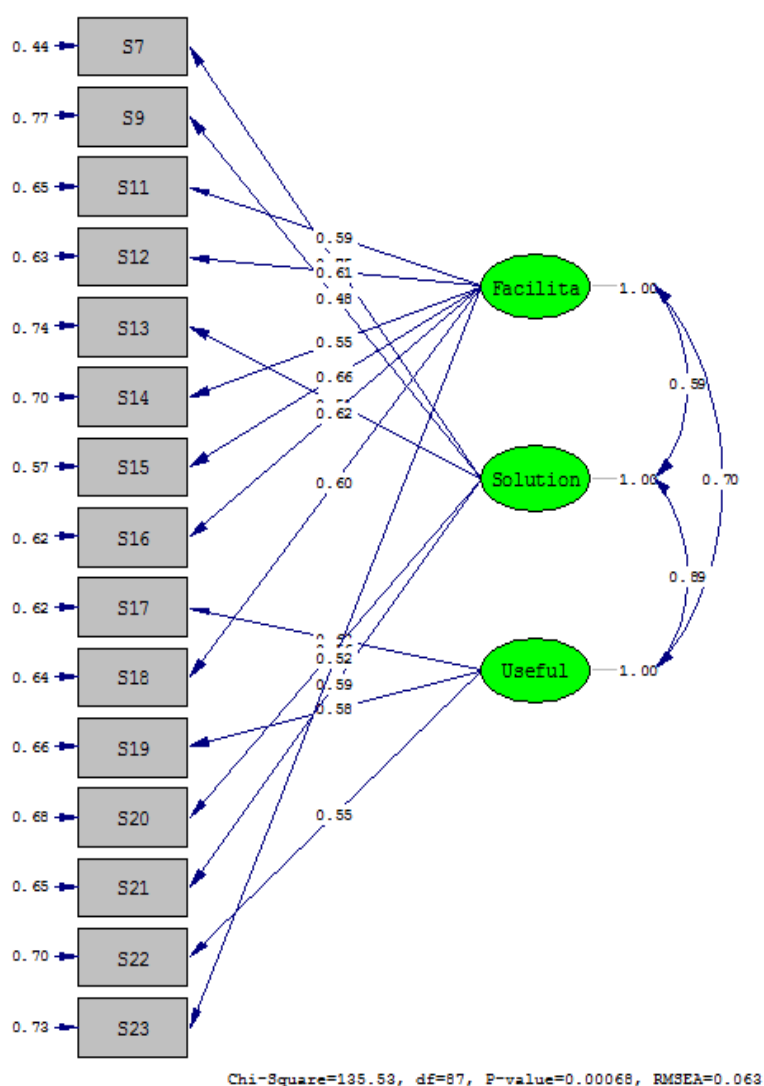


Figure 3. Examination of Error Variations in Path Diagram

As seen in Figures 2 and 3, the results of the CFA applied to the data group are given out in Table 3.

Table3. Second Level CFA Results

Variables		Correlation Coefficients	t value	R <sup>2</sup>	Structural Equations		
					Correlation Coefficients	t-value	R <sup>2</sup>
Facilitation	F11	.59	7.02	.35	1.00	7.24	.59
	F12	.61	7.19	.37			
	F14	.55	6.35	.30			
	F15	.66	7.91	.43			
	F16	.62	7.33	.38			
	F18	.60	7.13	.36			
	F23	.52	6.03	.27			
Solution	S7	.75	9.15	.56	1.00	8.05	.70
	S9	.48	5.37	.23			
	S13	.52	5.32	.26			
	S20	.56	6.18	.32			
	S21	.59	6.86	.35			
Useful	U17	.62	6.96	.38	1.00	11.74	.89
	U19	.58	6.57	.34			
	U22	.55	6.14	.30			

Observed variable's t-value relevancy levels were checked first according to LISREL secondary level confirmatory factor analysis results applied to the gathered data. If the t-level is greater than 1.96 it is 0.05 relevant, if it is greater than 2.56, it is 0.01 relevant. According to CGA results the t-values are greater than 2.56. According to this result, t-levels of the latent variables explaining observed variables are .01 relevant. After t-values were established to be relevant, error variations of the variables were examined. As seen in the Figure 3, error variations of the variables are low. Therefore, it was decided to include all the indicators in this model since relevant t-values were received for all items. After deciding which indicators would be included in the defined model according to second level confirmatory factor analysis results, model's suitability was discussed while taking the suitability criteria into account.

A P-value was checked primarily to define the models suitability. While the p-value's irrelevancy was a desired situation, the p-figure can be relevant depending on the size of the sample in the confirmatory factor analysis, as it is on the Figure 3. For this reason, alternative fit indexes are taken into consideration. First of

these fit indexes is ki-square statistic ( $\chi^2$ ). However,  $\chi^2$  is not a statistic that can be taken into consideration on its own. Therefore, it is taken into consideration after it is proportioned with the degree of freedom. If the  $\chi^2$ /sd rate is lower than 3, the fit is perfect, and if it is lower than 5, it is considered to be acceptable. According to this, the  $\chi^2$ /sd ratio for the analysis can be considered a perfect level of fit ( $135.53/87 = 1.56$ ).

Root Mean Square Error of Approximation (RMSEA) has shown that it has a fit index level of .06. If the RMSEA's value is equal or lower than .05, the fit is perfect, if it is lower than .08, the fit is acceptable, and if it is .10 or greater, the fit is weak. Therefore, it can be said that the fit index for the analysis is acceptable.

The continuation of the examination of the fit indexes shows that Goodness of Fit Index (GFI) is .90 while the Adjusted Goodness of Fit Index (AGFI) is .86. GFI and AGFI values are in the range between 0 and 1. If the GFI and AGFI's values are equal to or higher than .95, the fit is perfect and if they are between .90 and .94, then the fit is acceptable (Schumacker & Lomax 2004; Hooper, et al., 2008). According to this, GFI and AGFI have a fit value close to the acceptable level.

Standardized Root Mean Square Residual (RMR) index is .03. If the RMR and Standardized RMR values are lower than .05, the fit is perfect, if it is lower than .08 the fit is good and if it is lower than .10, the fit is acceptable. According to this, standardized RMR for the analysis has a perfect fit.

Assessments of non-normed fit index (NNFI) and comparative fit index (CFI) show the values .88 and .90 respectively. If the NNFI and CFI have values above .95 the fit is perfect and if they have values above .90, the fit is acceptable (Sümer, 2000). According to this, NNFI for the analysis has a fit value close to acceptable levels and CFI for the analysis has a fit value close to the acceptable levels.

Modification suggestions were taken into consideration after the assessments of the model's suitability were made according to the second level confirmatory factor analysis. There is not any modification suggestion in the assessment.

### 3. Results

Results of the study confirmed the PSDHS's three factor structure as a model. Results also indicated that this developed model is suitable to explain the relationship between facilitating accessibility of provided health service, problem solver quality of provided health service and benefits of provided health service. The fact that the fit indexes of the developed model cannot deny the model can be shown as a proof of its reliability. According to CGA results, all standardized parameter values are greater than .50. Therefore, all constructs have the validity of unity (Chou, et al., 2002: 52).

The results gained in the scope of the research shows that the scale is valid and reliable for the data gathered from the study group investigated. The repetition of reliability and validity works for disabled who live in provinces that is not within the scope of this research and the comparison these analyses is very important, especially when the factor of construct validity taken into account. In this context, "Perception Scale on Determinants of Disabled People Access to Health Services" (PSDHS) must be used in other researches, and findings must be compared to the results of this research.

It is possible to use the PSDHS which was developed for this study to determine the reasons behind the ineffectiveness of health services in terms of all health care beneficiaries

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