PERBEDAAN HASIL *FIRST ORDER* DAN *SECOND ORDER CONFIRMATORY FACTOR ANALYSIS* PERAWATAN KESEHATAN BADUTA

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SUMMARY

DIFFERENCE BETWEEN FIRST ORDER AND SECOND ORDER CONFIRMATORY FACTOR ANALYSIS OF UNDER TWO YEARS HEALTH CARE

Basic Health Research (Riskesdas) 2010 focused on 2015 MDG goal achievement. One of them was to lower child mortality. Important element in reducing child mortality is by increasing child health care including under two years (age of 0-23 months) by providing breast milk and immunization. Age limit of 23 months is ideal limit for child to get breast milk while to get complete immunization information (valid immunization) on child through research and survey is at age between 12 to 23 months. Health care of under two years is categorized having excess two variables. To find interrelationship between many variables in one group and making summary into less factor group is called factor analysis. Factor analysis is aimed to confirm between unobserved variable in direct manner based on theory is confirmatory factor analysis (CFA). Confirmatory Factor Analysis (CFA) can be performed by single group model and multigroup sample model methods. In single group model of CFA there are two analysis that can be used: second order CFA and first order CFA. This research aimed to analyze consistency and accuracy differences between first order and second order confirmatory factor analysis and to analyze multi group sample model from best model based on mother characteristic on under two years health care. Method used was non reactive or unobtrusive research type because it used secondary data from Riskesdas 2010 of Balitbangkes by research design used cross sectional approach. Single group sample model analysis (second order and first order CFA) is useful for model estimation and for analyzing model entry variable, loading factor, validity and reliability, consistency and accuracy and mathematical equation. Analysis result on model entry variable showed that after re-specification have been done on second order CFA method entry model variable found 9 indicators while indicator X12, X3, and X6 were excluded from the model because they had least negative value. In first order method analysis indicator addition composite data result in all variable can enter the model, so did first order data of factor score is also resulting all variable entering the model. Factor loading result showed that second order CFA method, both first order data composite of indicator addition and first order of factor score data resulted λ coefficient value, standardized solution factor loading that meeting requirement of SS > 0,5 and <1 and all were positive so did value of tλ >1,96, thus the resulting model was categorized as fit model. Validity and reliability analysis results showed that only second order CFA method analysis was able to show valid value (tλ >1,96) and reliability with contract reliability value of 0.73 and extract variance with

value of 0.5 while first order data composite of indicator addition and first order data of factor score is only valid but not reliable. Analysis result of model consistency and fit showed that only first order data of factor score analysis that showed consistency and accuracy of model fit and it was proved by General of Fit Statistic (GOF) element that resulted fixed value and fulfilling GOF element of 99,9%. Second order CFA method was inconsistent and inaccurate on model fit. It was not consistent because there was model fit change on AGFI element from non fit to fit. It was not accurate because it was only able to meet 22,2% of GOF element. First order data composite of indicator addition was also not consistent and not accurate on model fit. It was not consistent because GOF element on AGFI and GFI started from fit to non fit. It was not accurate because it was only able to meet 33.3% of GOF element. Analysis result on mathematical equation resulted relationship between variable and indicator. Greatest relationship pattern from second order CFA method analysis result was growth and development indicator relationship pattern and under two years health care with R_2 of 87% indicating that under two years health care variable is able to explain growth and development of 87%. On first order data composite method of indicator addition resulted that greatest relationship pattern was exist on relationship between nutrition need indicator and under two years health are with R_2 value of 99% indicating that under two years health care variable was able to explain nutrition needs of 99%. On first order data of factor score, greatest relationship pattern was shown by disease prevention indicator on under two years health care with R_2 was 56%, under two years health care was able to explain disease prevention of 56%. Multi group sample model result found model contribution information on fit model chi square and model fit (GOF). Best contribution of each group was rural area contributed 45.62% better than urban area, mother who had never been schooling provided best contribution of 3.26% better than other educational background, mothers who were working as labor contributed 7.4% better than other employment types and quintile 4 provided best contribution of 10.41%. rural area model fit fulfilled GOF element of 100%, high senior school education of 100%, mother employment were entrepreneur/service sector/trade sector reached 100% and quintile 4 was also 100% fulfilled the GOF elements. Model fit difference between GOF evaluation result of multi group sample model and single group on first order CFA data score factor showed GOF analysis result of single group model on first order CFA of data score factor showed model fit in compare with multi group samples model analysis result.

ABSTRACT

DIFFERENCE BETWEEN FIRST ORDER AND SECOND ORDER CONFIRMATORY FACTOR ANALYSIS OF UNDER TWO YEARS HEALTH CARE

Basic Health Research (Riskesdas) 2010 implementation aimed to reach 2015 MDGs goal achievement. One of them was to lower child mortality. Effort to decrease child mortality is by improving child health care including under two years group. Health variable of under two years is logically related each other. To confirm relationship between variables confirmatory factor analysis. This research aimed to analyze difference of consistency and accuracy between first order and second order of CFA and to analyze

multi group sample model from best model based on mother characteristic in under two years health care. Research method used non reactive/unobtrusive type, because use secunder data from Riskesdas 2010. Analysis result of second order CFA showed that only 9 indicators that entered the model, first order CFA resulted in all variables entered the model. Third factor loading of CFA method showed $\lambda < 1$ and $t\lambda > 1,96$. Only second order CFA that was valid and reliable. Only first order of factor score data that was consistent and accurate on model fit. Third mathematical equation of CFA method showed that there is relationship between indicators on under two years health care. Result of multi group sample model showed that rural area provided best contribution for model fit of chi square of 45.62%. Mothers who had never schooling were 9,43%, labor of 7,4% and quantile 4 with 10,41% of contribution. It could be concluded that best method of fit model, consistent and accurate was first order data score factor. Multi group sample model result showed there is difference between each groups, each control variable group. Best contributions were rural area, never had schooling, working as labor and quintile 4.

Keywords: Riskesdas, first order, second order confirmatory factor analysis.