



Department of Social Work & Social Administration

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**The Study on Child Abuse and Spouse Battering**  
**The University of Hong Kong**



# The Study on Child Abuse and Spouse Battering- Part Two

## Objective:

To develop and validate assessment tools to facilitate early identification of cases at risk of child abuse and spouse battering and timely intervention



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# Operational definition of spouse battering and child abuse

- Spousal battering is defined by physical assault, sexual coercion or injury, as measured by the revised Conflict Tactics Scales (CTS2).
- Child physical maltreatment is defined by severe or very severe levels of physical assault, as measured by the Parent-Child Conflict Tactics Scale (CTSPC)

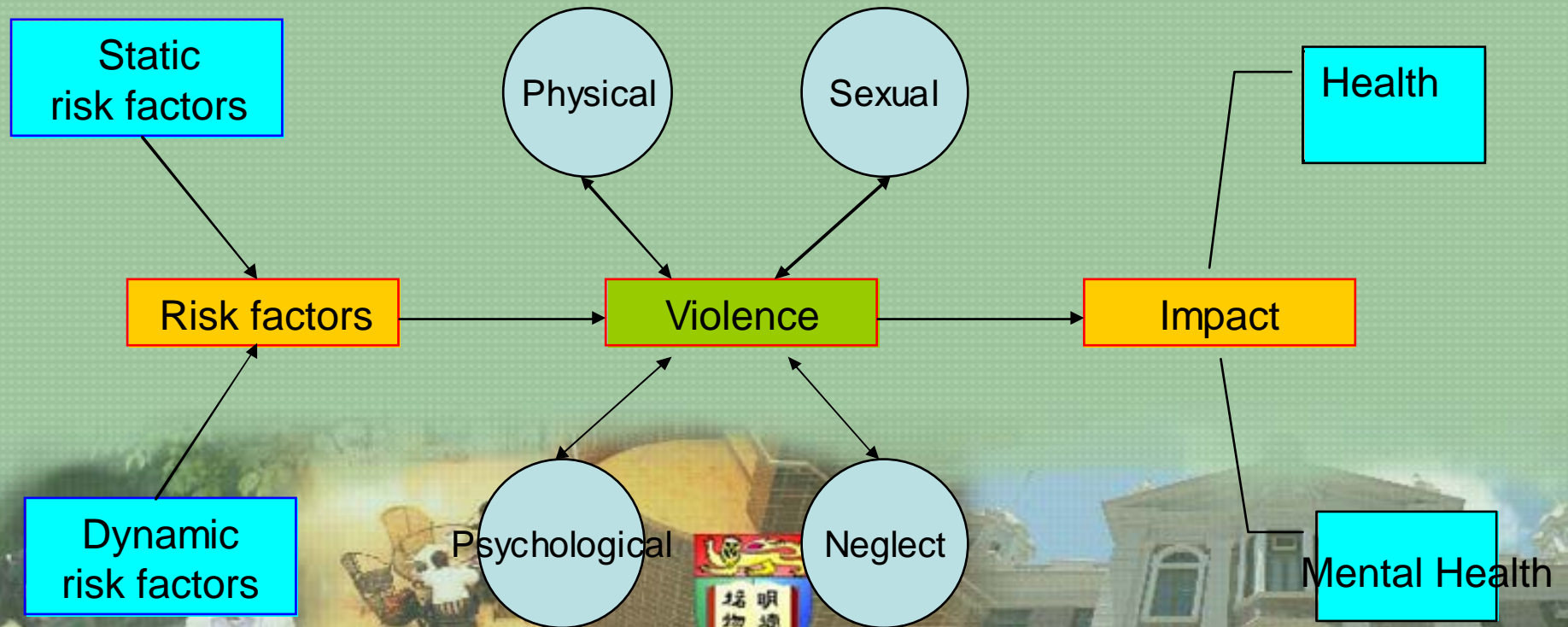


# Definition of risk assessment

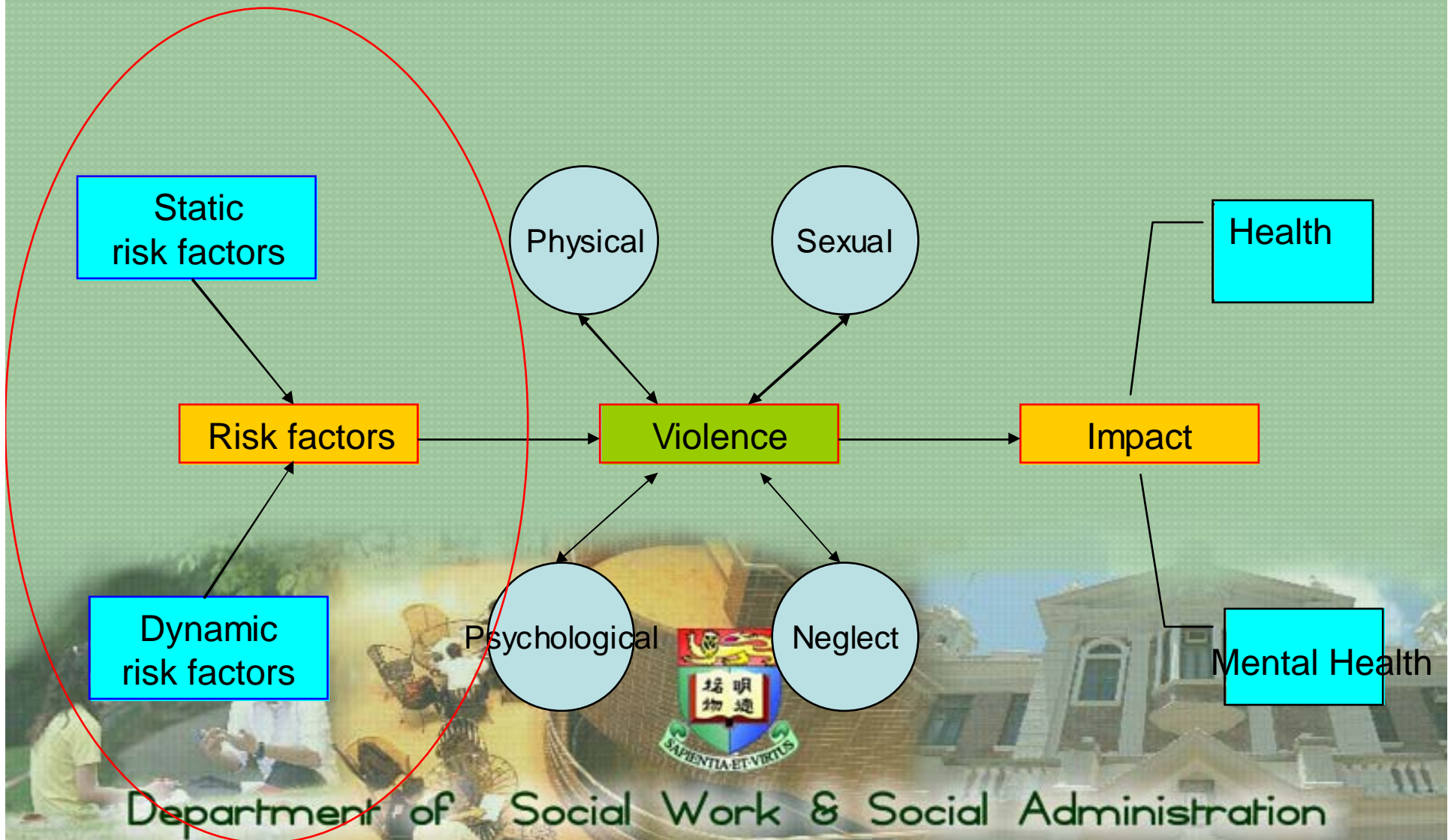
- Risk assessment is the process of identifying and studying hazards to reduce the probability of their occurrence. (Boer, 1997)
- The process of evaluating individuals to (1) characterize the risk that they will commit violence in the future, and (2) develop interventions to manage or reduce that risk. (Monahan, 1994 )



# Risk assessment framework



# Prediction of risk



# Development of risk assessment tools

- Phase A: Development of item pool
  - In-depth interviews and focus group discussions with service users.
  - SWD and the Advisory Group on the Study on Child Abuse and Spouse Battering
  - Pre-tested



- Phase B: Generation of Risk Assessment Tool
  - Representative household survey (December 2003 to August 2004) - A total of 5,049 adult respondents were successfully interviewed. The overall response rate achieved was 71%.





- Phase C: Preliminary logistic regression analysis – over 30 risk factors were identified for:
  - the perpetrator of spouse battering
  - the victim of spouse battering
  - the perpetrator of child abuse
- All these factors are significantly correlated to spouse battering and child abuse.



- Phase D: Factors included in the final model
  - Factors selected in the reduced model, that is, the model used to design the risk assessment tools



# Chinese Risk Assessment Tool for Spouse Battering Perpetrator (Form A)



# Logistic regression analysis (for perpetrators of spouse battering)

Risk factor	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for Exp (B)	
							Lower	Upper
Wife pregnancy/ adoption/postnatal (within 1 year) ( $x_1$ )	.637	.291	4.779	1	.029	1.890	1.068	3.346
Unemployment ( $x_2$ )	.665	.326	4.159	1	.041	1.945	1.026	3.687
Indebtedness ( $x_3$ )	.540	.215	6.284	1	.012	1.716	1.125	2.617
In-law Conflict ( $x_4$ )	.585	.254	5.284	1	.022	1.794	1.090	2.954
Dominance ( $x_5$ )	.587	.240	5.954	1	.015	1.798	1.122	2.881
Jealousy ( $x_6$ )	.529	.147	12.886	1	.000	1.698	1.272	2.266
Negative Attribution ( $x_7$ )	.501	.177	8.027	1	.005	1.651	1.167	2.334
Shifting Responsibility ( $x_8$ )	.260	.106	6.033	1	.014	1.297	1.054	1.597
Anger Management ( $x_9$ )	-.572	.197	8.428	1	.004	.564	.384	.830
Face ( $x_{10}$ )	.556	.150	13.742	1	.000	1.744	1.300	2.340
Criminal History ( $x_{11}$ )	.905	.184	24.264	1	.000	2.472	1.724	3.544
Childhood witnessed parental violence ( $x_{12}$ )	1.058	.210	25.457	1	.000	2.880	1.909	4.343
Partner's disturbance ( $x_{13}$ )	.731	.091	64.180	1	.000	2.078	1.737	2.485
Constant	-8.540	1.056	65.369	1	.000	.000		

For perpetrators of spouse battering, the required model equation is:

- $A = -8.540 + 0.637X_1 + 0.665X_2 + 0.540X_3 + 0.585X_4 + 0.587X_5 + 0.529X_6 + 0.501X_7 + 0.260X_8 - 0.572X_9 + 0.556X_{10} + 0.905X_{11} + 1.058X_{12} + 0.731X_{13}$
- $P(\text{risk}(A)) = \exp(A) / (1 + \exp(A))$



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## -2 log likelihood statistics for the logistic regression model

Risk Factor	Model Log Likelihood	Change in - 2 Log Likelihood	df	Sig. of the Change
Wife pregnancy/adoption/postnatal (within 1 year)	-943.730	4.322	1	.038
Unemployment	-943.985	4.832	1	.028
Indebtedness	-944.484	5.831	1	.016
In-law Conflict	-943.792	4.447	1	.035
Dominance	-944.556	5.975	1	.015
Jealousy	-947.951	12.765	1	.000
Negative Attribution	-945.566	7.993	1	.005
Shifting Responsibility	-944.619	6.100	1	.014
Anger Management	-945.792	8.446	1	.004
Face	-948.468	13.799	1	.000
Criminal History	-952.580	22.022	1	.000
Childhood witnessed parental violence	-952.960	22.783	1	.000
Partner's disturbance	-971.170	59.202	1	.000

	Chi-square	Degree of freedom	Sig.
Hosmer-Lemeshow (H-L) test for all risk factors regression analysis (Perpetrators)	6.309	8	.613

\*The H-L test shows that the model explains the data well.



# Classification table

All risk factors logistic regression analysis (perpetrators)

Actual	Predicted		Total
	Not Happened	happened	
Not Happened	64.38%	27.54%	91.92%
Happened	2.55%	5.53%	8.08%
Total	66.93%	33.07%	100%



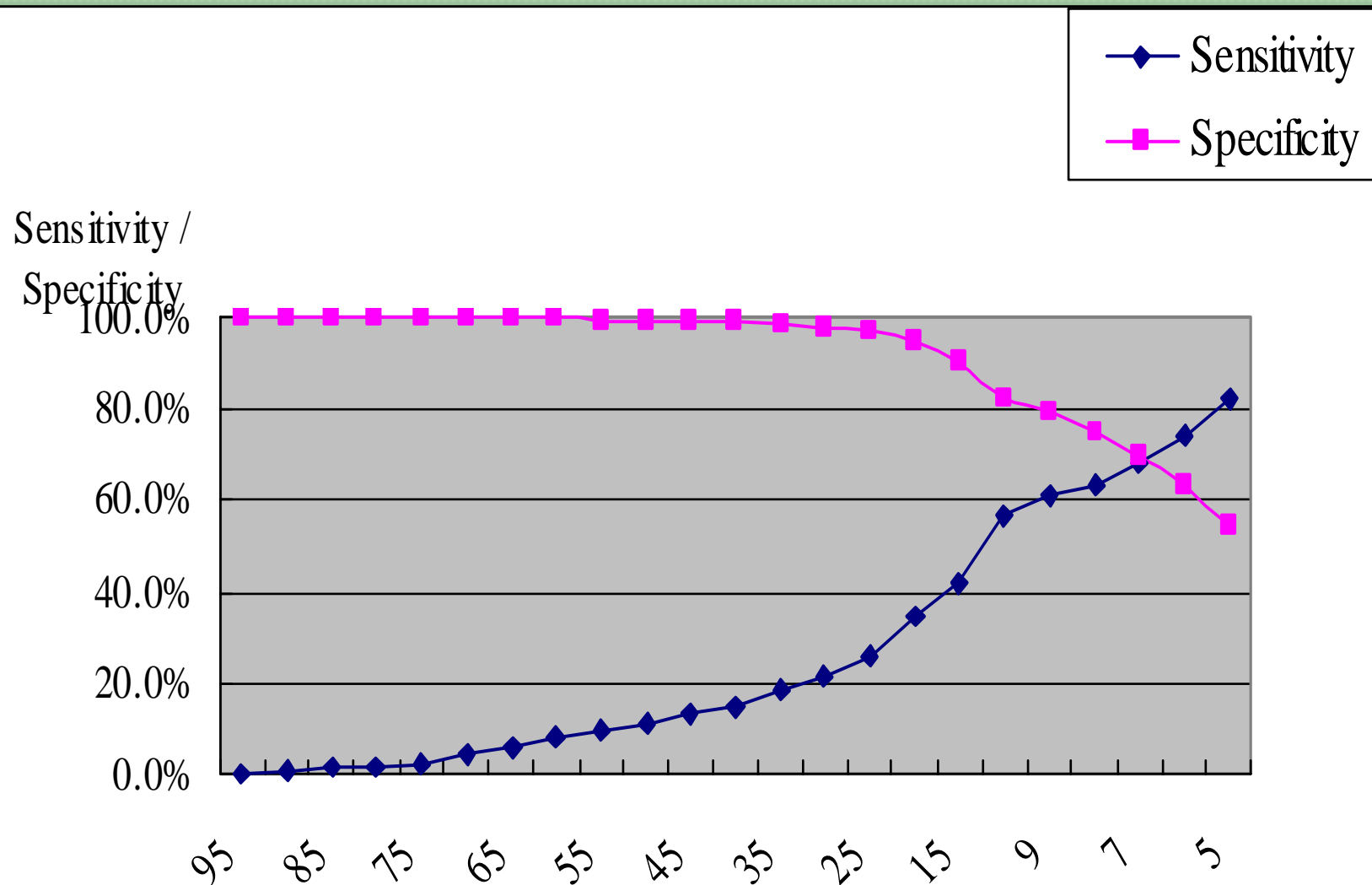
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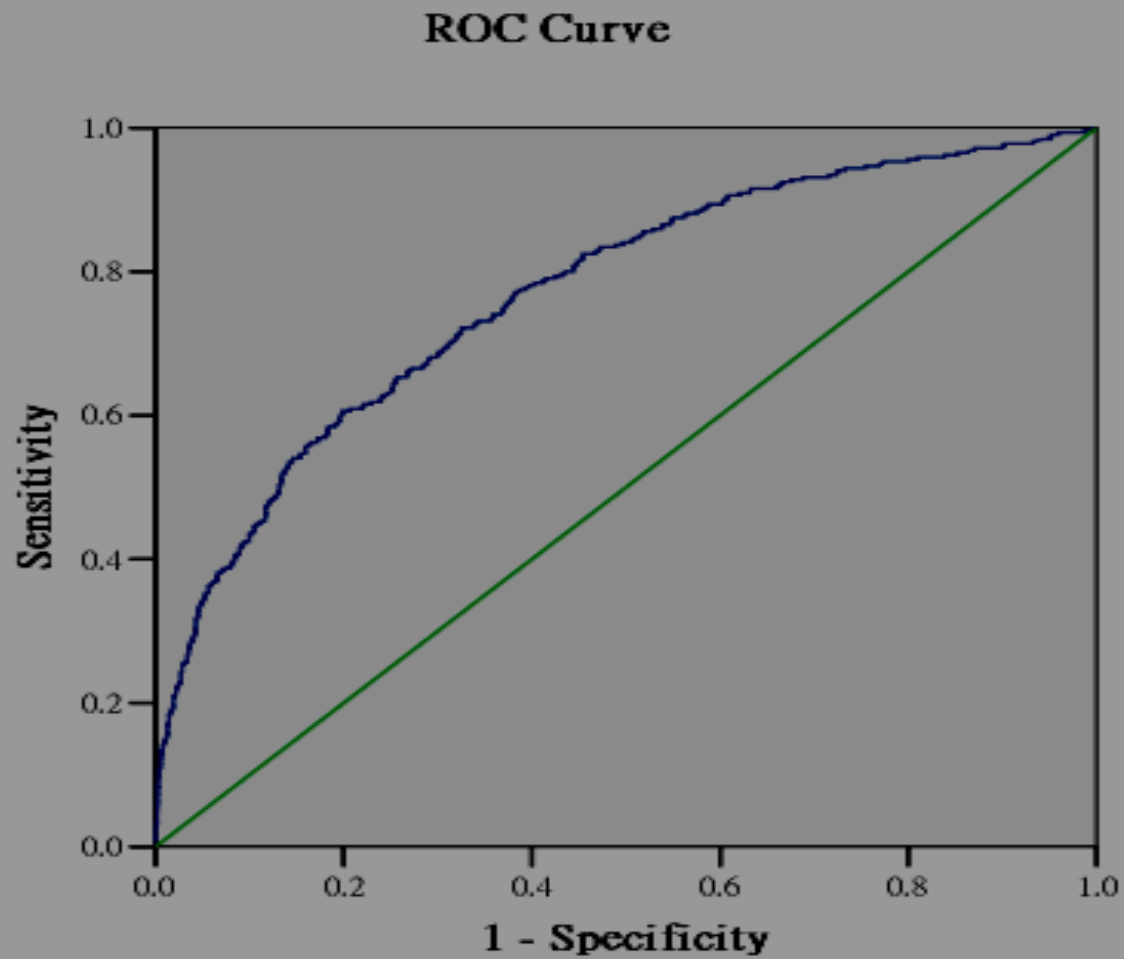
- **Sensitivity**, which is the percentage of occurrences correctly predicted and is equal to  $(5.53\%)/(8.08\%)$  or **68.4%**;
- **Specificity**, which is the percentage non-occurrences correctly predicted and is equal to  $(64.38)/(91.92\%)$  or **70.0%**;
- **Positive predictive value**, which is the percentage of predicted occurrences that are correct and is equal to  $(5.53\%)/(33.07\%)$  or **16.7%**;
- **Negative predictive value** which is the percentage of predicted non-occurrences that are correct and is equal to  $(64.38\%)/(66.93\%)$  or **96.2%**;
- **Overall accuracy**, which is the percentage of predicted occurrences and non-occurrences that are correct and is equal to  $(64.38\%+5.53\%)$  or **69.9%**.



- The optimal cut-off probability should be in the region of 7%.



A Receiver Operating Characteristic (ROC) curve = 0.77



Diagonal segments are produced by ties.

# Chinese Risk Assessment Tool for Spouse Battering Victim (Form B)



# Logistic regression analysis (for victims of spouse battering)

Risk factor	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for Exp (B)	
							Lower	Upper
Jealousy ( $x_1$ )	.718	.155	21.451	1	.000	2.051	1.513	2.779
Negative Attribution ( $x_2$ )	.716	.186	14.868	1	.000	2.047	1.422	2.946
Anger Management ( $x_3$ )	-.632	.202	9.800	1	.002	.532	.358	.790
Criminal History ( $x_4$ )	.750	.195	14.711	1	.000	2.116	1.443	3.104
Sex Abuse History ( $x_5$ )	1.041	.340	9.403	1	.002	2.832	1.456	5.510
Childhood witnessed parental violence ( $x_6$ )	1.123	.217	26.721	1	.000	3.075	2.008	4.708
Partner's disturbance ( $x_7$ )	.654	.103	39.976	1	.000	1.924	1.570	2.356
Feeling unsafe ( $x_8$ )	.502	.112	20.184	1	.000	1.651	1.327	2.055
Constant	-5.996	.849	49.839	1	.000	.002		

For victims of spouse battering, the required model equation is:

- $V = -5.996 + 0.718X_1 + 0.716X_2 - 0.632X_3 + 0.750X_4 + 1.041X_5 + 1.123X_6 + 0.654X_7 + 0.502X_8$
- $P(\text{risk}(v)) = \exp(V) / (1 + \exp(V))$



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## -2 log likelihood statistics for the logistic regression model

Risk Factor	Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Jealousy	-856.442	21.270	1	.000
Negative Attribution	-853.190	14.767	1	.000
Anger Management	-850.724	9.834	1	.002
Criminal History	-852.544	13.476	1	.000
Sex Abuse History	-850.014	8.416	1	.004
Childhood witnessed parental violence	-857.505	23.396	1	.000
Partner's disturbance	-864.245	36.877	1	.000
Feeling unsafe	-855.471	19.329	1	.000

	Chi-square	Degree of freedom	Sig.
Hosmer-Lemeshow (H-L) test for all risk factors regression analysis (Victims)	15.211	8	.055

\*The H-L test shows that the model explains the data well.





# Classification table

All risk factors logistic regression analysis (victims)

Actual	Predicted		Total
	Not Happened	happened	
Not Happened	64.87%	28.02%	92.89%
Happened	2.10%	5.00%	7.10%
Total	66.97%	33.02%	100%

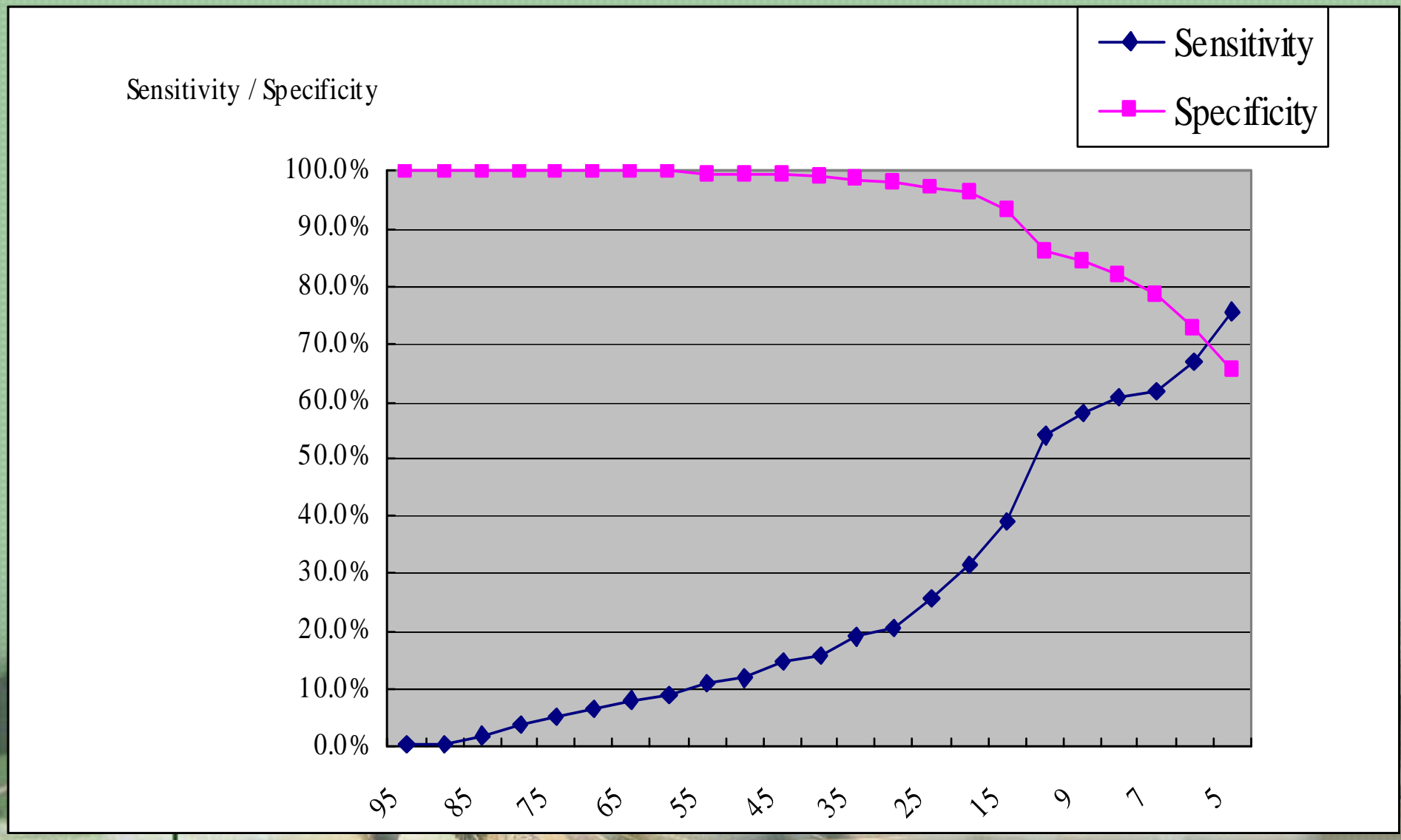


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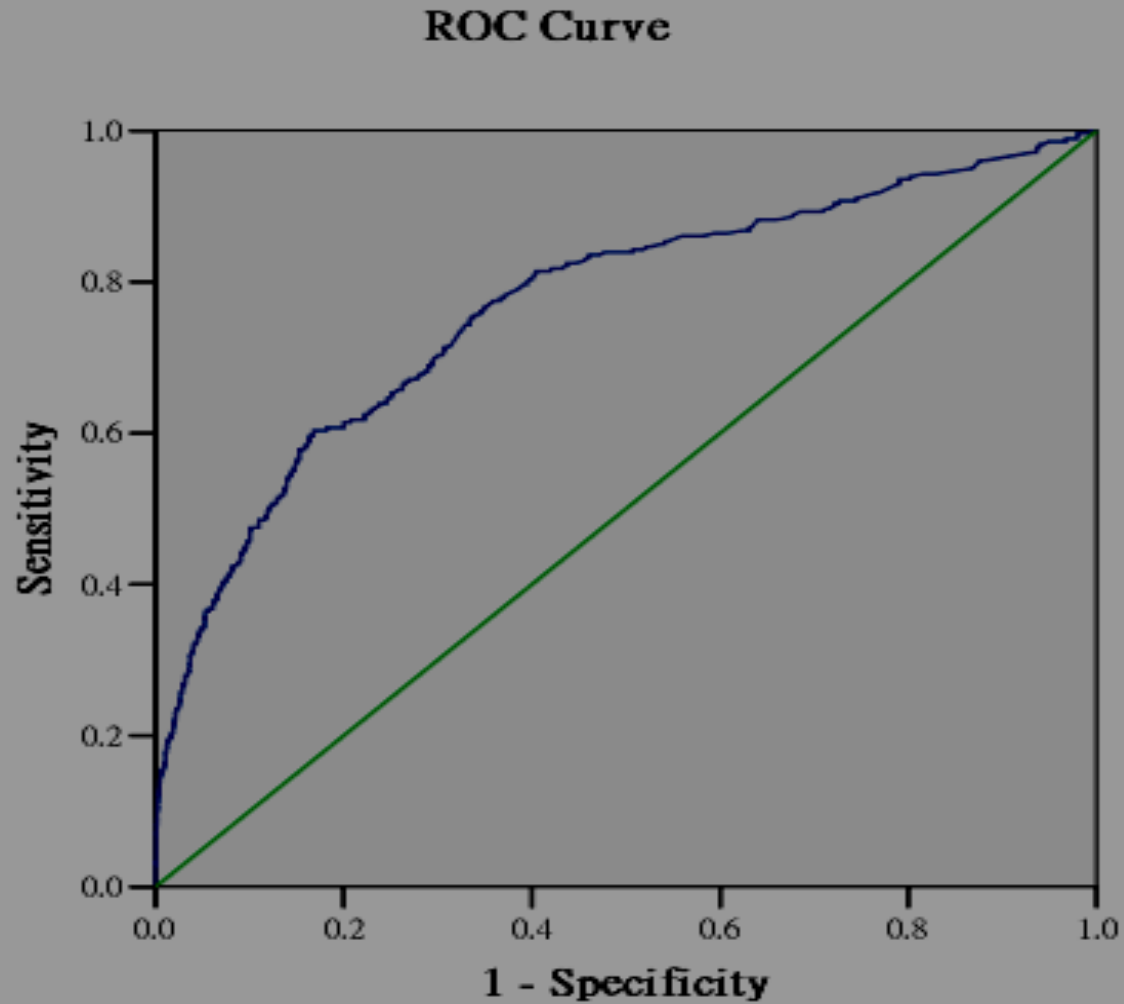
- **Sensitivity**, which is the percentage of occurrences correctly predicted and is equal to  $(5\%)/(7.10\%)$  or **70.4%**;
- **Specificity**, which is the percentage non-occurrences correctly predicted and is equal to  $(64.87\%)/(92.89\%)$  or **69.8%**;
- **Positive predictive value**, which is the percentage of predicted occurrences that are correct and is equal to  $(5\%)/(33.02\%)$  or **15.1%**;
- **Negative predictive value** which is the percentage of predicted non-occurrences that are correct and is equal to  $(64.87\%)/(66.97\%)$  or **96.9%**;
- **Overall accuracy**, which is the percentage of predicted occurrences and non-occurrences that are correct and is equal to  $(64.87\%+5\%)$  or **69.9%**.



- The optimal cut-off probability should be in the region of 5.5%.



A Receiver Operating Characteristic (ROC) curve = 0.7687



Diagonal segments are produced by ties.

# Chinese Risk Assessment Tool for Child Abuse Perpetrator (Form C)



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# Logistic regression analysis (for perpetrators of child abuse)

Risk factor	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for Exp (B)	
							Lower	Upper
Unemployment ( $x_1$ )	.953	.474	4.052	1	.044	2.595	1.025	6.566
Receiving CSSA ( $x_2$ )	1.306	.284	21.098	1	.000	3.690	2.114	6.441
Extended Family Influence ( $x_3$ )	.653	.209	9.776	1	.002	1.922	1.276	2.895
Jealousy ( $x_4$ )	1.110	.238	21.775	1	.000	3.034	1.904	4.837
Anger Management ( $x_5$ )	-.858	.305	7.894	1	.005	.424	.233	.771
Violence Approval ( $x_6$ )	.971	.335	8.385	1	.004	2.639	1.368	5.091
Criminal History ( $x_7$ )	1.458	.246	35.048	1	.000	4.296	2.651	6.960
Constant	-8.150	1.567	27.064	1	.000	.000		

For perpetrators of spouse battering, the required model equation is:

- $C = -8.150 + 0.953X_1 + 1.306X_2 + 0.653X_3 + 1.110X_4 - 0.858X_5 + 0.971X_6 + 1.458X_7$
- $P(\text{risk}(c)) = \exp(C) / (1 + \exp(C))$



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# -2 log likelihood statistics for the logistic regression model

Risk Factor	Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Unemployment	-387.557	4.895	1	.027
Receiving CSSA	-394.242	18.265	1	.000
Extended Family Influence	-390.228	10.237	1	.001
Jealousy	-396.019	21.821	1	.000
Anger Management	-389.054	7.889	1	.005
Violence Approval	-389.533	8.848	1	.003
Criminal History	-400.222	30.226	1	.000



	Chi-square	Degree of freedom	Sig.
Hosmer-Lemeshow (H-L) test for all risk factors regression analysis (Perpetrators of child abuse)	7.719	8	.461

\*The H-L test shows that the model explains the data well.



# Classification table

All risk factors logistic regression analysis (perpetrators)

Actual	Predicted		Total
	Not Happened	happened	
Not Happened	68.15%	25.90%	94.05%
Happened	1.85%	4.10%	5.95%
Total	70.00%	30.00%	100%

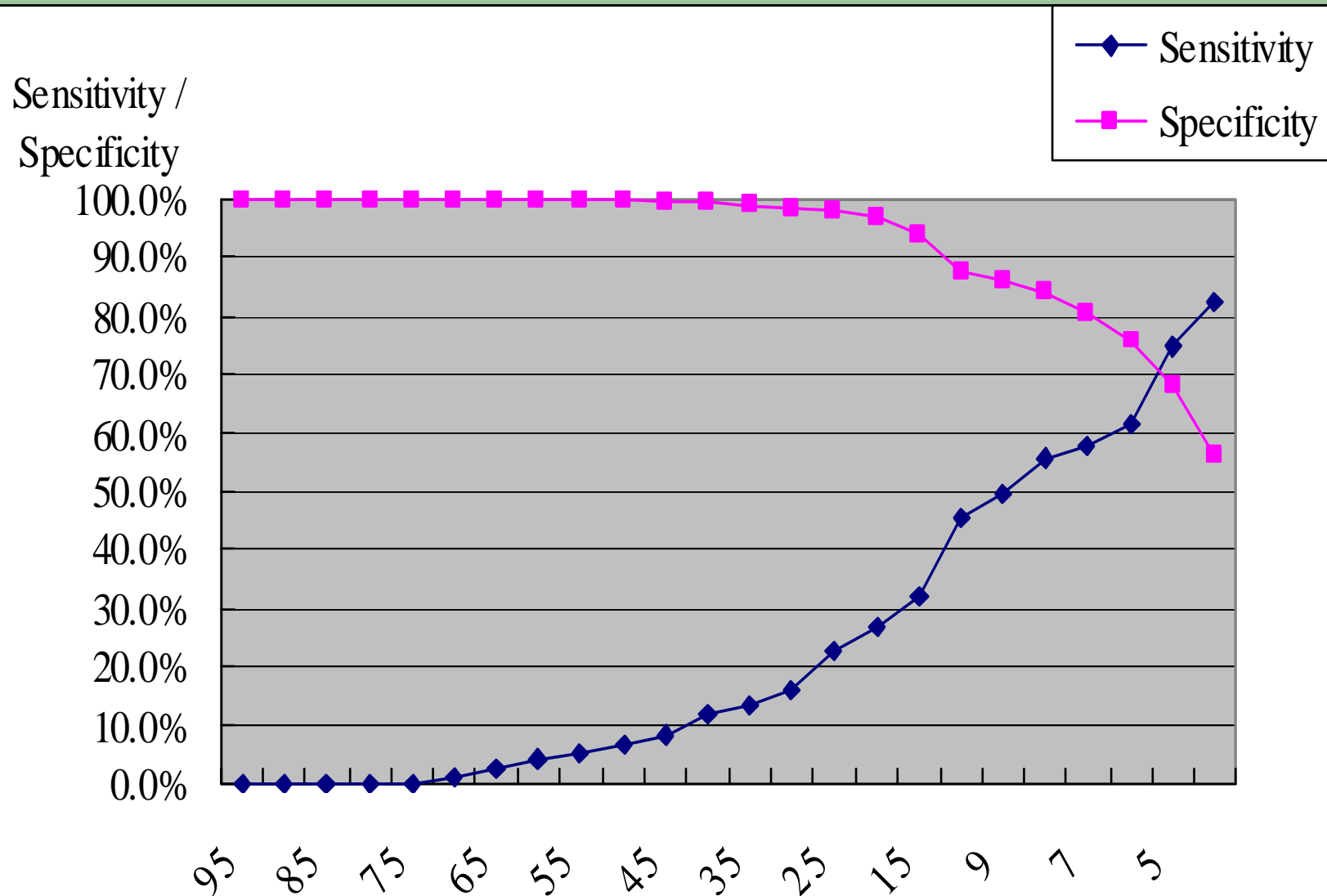


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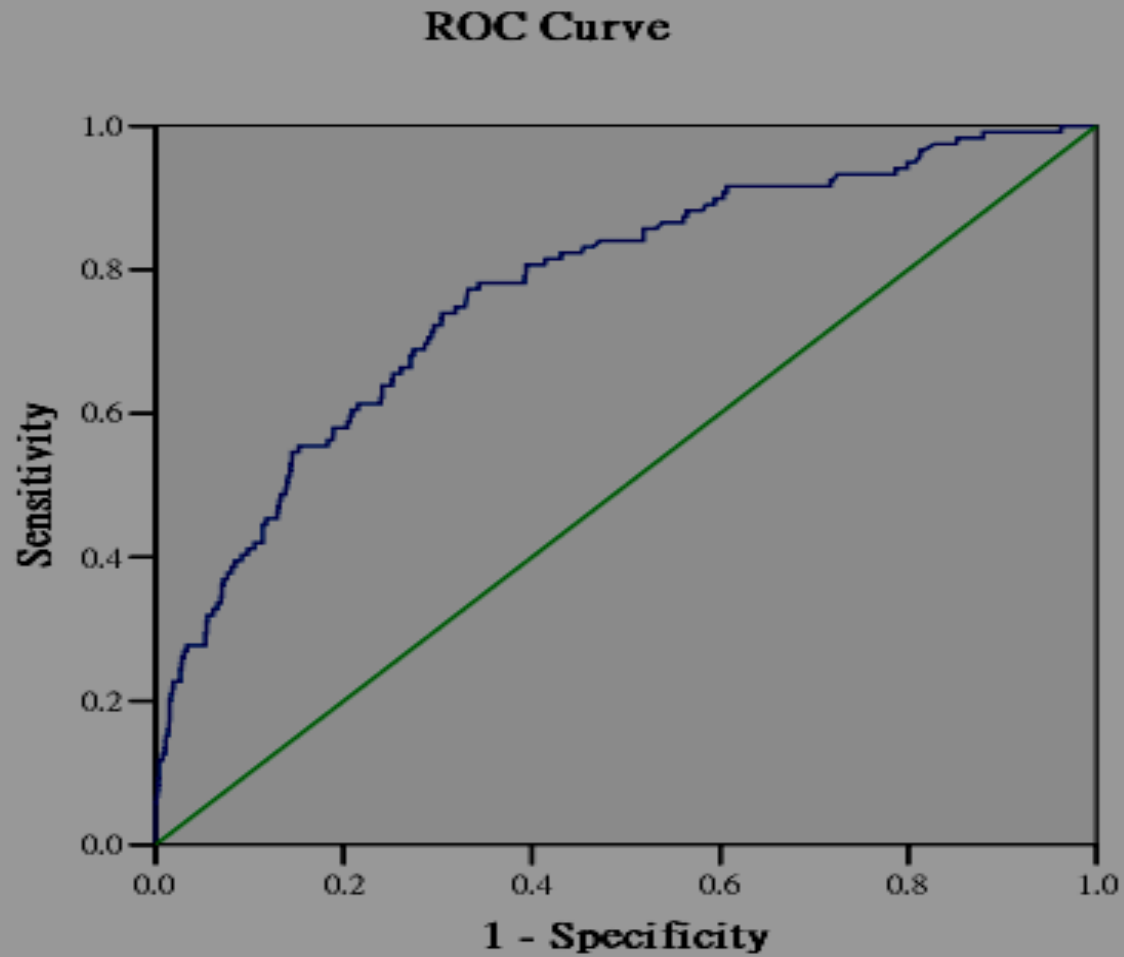
- **Sensitivity**, which is the percentage of occurrences correctly predicted and is equal to  $(4.10\%)/(5.95\%)$  or **68.9%**;
- **Specificity**, which is the percentage non-occurrences correctly predicted and is equal to  $(68.15\%)/(94.05\%)$  or **72.5%**;
- **Positive predictive value**, which is the percentage of predicted occurrences that are correct and is equal to  $(4.10\%)/(30\%)$  or **13.7%**;
- **Negative predictive value** which is the percentage of predicted non-occurrences that are correct and is equal to  $(68.15\%)/(70\%)$  or **97.4%**;
- **Overall accuracy**, which is the percentage of predicted occurrences and non-occurrences that are correct and is equal to  $(68.15\%+4.1\%)$  or **72.3%**.



- The optimal cut-off probability should be in the region of 5.5%.



A Receiver Operating Characteristic (ROC) curve = 0.7728



Diagonal segments are produced by ties.

# Usage of the tools

- The tool is designed to function as a triage, not for screening which could be done by using tools like AAS or CTS2.
- *It is designed to help assessor assessing its probability of the occurrence of violence when risk factors continue to function and so decide the most appropriate way to handle it.*



# Target users of the tools

- The risk assessment tools are primarily designed for social workers, counselors and psychologists who have direct contact with the perpetrators and/or victims of domestic violence.



# Functions of the risk assessment tools

- To facilitate **early identification** of domestic violence;
- To assist assessor in collecting fundamental information required to formulate **further clinical assessment**



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# Limitations of the risk assessment tools

- Factors included in the tool reflect the most statistically significant ones as demonstrated by the norm of respondents. Some factors with less significance may be valid for some particular cases.
- Accuracy of data collected depends heavily on the recollection of the respondents.
- While the tool is designed for self-report, there is always a possibility that the perpetrator may minimize, rationalize or deny acts of aggression against a spouse when responding to the questions asked in the tool.



- The scores generated by the tool show the optimum balance between sensitivity and specificity being calculated with statistical means.
- The scores are based on the assessment of risk factors. In addition, the scores only measure the probability of occurrence instead of the severity and frequency of violence. Direct assessment on the types, severity and frequency of violence used should be conducted.
- The tools should be treated as preliminary risk indicators; the assessor's practice wisdom will be needed for final judgment. Second opinion from supervisor and senior practitioners should be sought.



# People qualified to conduct risk assessment

- **social workers, counselors and psychologists** who have direct contact with the perpetrators and/or victims of domestic violence.
- People who wish to use the tools should ensure that **the agency they work for has access to the information and resources** needed to conduct a risk assessment of potential clients.
- To qualify to use the tools as part of the assessment procedure, the assessor should receive training in the tools' usage.



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- The **training** should enhance the assessor's knowledge regarding the strengths and limitations of the tools and the standard procedures that need to be followed in conducting a risk assessment.
- An assessor with no prior experience of handling domestic violence should also **receive training** in understanding the dynamics of **domestic violence, gender based** violence and ways to elicit maximal information for objective judgment.

# Administration of the tools

- Risk assessment should be conducted **whenever the assessor can get in touch with a client.**
- It is **not necessary to wait for the appearance of physical signs** like bruises and physical injuries, or the evolving of suicidal ideation before one is eligible for assessment.
- Only after the risk assessment can the assessor **judges the potential risk** the client bears.
- risk assessment should be done **on a regular basis to monitor** any changes in risk and to allow the assessor to readjust intervention to meet the client's needs.



## Eligible targets:

- Perpetrator of spouse battering –
  - people who reported or being complained of using violence against partner, usually the primary aggressor in cases of mutual combat.
- Victim of spouse battering –
  - people who reported being abused by a partner, showing fear towards partner or being stalked by partner, usually the primary victim in cases of mutual combat.
- Perpetrator of child abuse –
  - people who reported or being complained of using violence against a child, or neglect the needs for healthy development of a child.



- In case of mutual combat,
  - the assessor should identify the primary aggressor by looking at the types and frequency of violence used, the severity of harm inflicted on the other partner, fear induced, power and control issues.
  - If the assessor still finds it difficult to differentiate, the client may be asked to complete two sets of the risk assessment tools, one for the perpetrator of spouse battering and one for the victim.
- Non-perpetrator or non-victim may be assessed if assessor finds it necessary.
  - Clients may display behaviors related to risk factors, for instance, unemployment and in-law conflict.



# Use of data in clinical risk assessment

(1) consider all risk factors supported in the study



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	Spouse battering		Child abuse
	Perpetrator (Form A)	Victim (Form B)	Perpetrator (Form C)
Chronic ill			
Disability			
Wife pregnancy/ adoption/postnatal	✓		
Unemployment	✓		✓
Income			
Receiving CSSA			✓
Indebtedness	✓		
Extended Family Influence			✓
In-law Conflict	✓		

Relationship Distress			
Dominance	✓		
Jealousy	✓	✓	✓
Negative Attribution	✓	✓	
Shifting Responsibility	✓		
Anger Management	✓	✓	✓
Substance Abuse			
Violence Approval			✓
Depressive Symptoms			
Social Desirability			
Stressful Conditions			



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Face	✓		
Self-esteem			
Social Support			
Suicidal Ideation			
Criminal History	✓	✓	✓
Sex Abuse History		✓	
Child Neglect			
Childhood witnessed parental violence	✓	✓	
Partner's disturbance	✓	✓	
Afraid of partner			
Feeling unsafe		✓	



- (2) The risk assessment tools are designed to measure the probability of occurrence of spouse battering and child abuse by detecting the presence of various risk factors that have been found to significantly correlate with the occurrence of domestic violence.
- (3) Although the assessment is valid for the time of the interview, it does not measure changes in factors over time. The client should be reassessed on a regular basis to monitor changes he or she may demonstrate.



- (4) employ multiple sources of information; the more sources of information the better
- (5) be victim-informed
- (6) Instrument improves clinical judgment – but clinician wisdom also plays important role
- (7) Risk assessment should lead to risk management.



- The tool is designed to function as a triage. it is designed to help assessor evaluate the urgency of a case by assessing its probability of the occurrence of violence when risk factors continue to function and so decide the most appropriate way to handle
- The more factors that are detected, the higher the likelihood domestic violence will occur.



# Reference

- Boer, D. P., Hart, S. D., Kropp, P. R., & Webster, C. D. (1997). *Manual for the Sexual Violence Risk - 20*. British Columbia: The British Columbia Institute Against Family Violence.
- Kantor, G. K., & Jasinski, J. L. (1998). Dynamics and risk factors in partner violence. In J. L. Jasinski & L. M. Williams (Eds.), *Partner violence: A comprehensive review of 20 years of research*. USA: Sage.
- Monahan, J., & Steadman, H. J. (1996). Violent storms and violent people: How meteorology can inform risk communication in mental health law. *American Psychologist*, 51(9), 931-938.
- Mrazek, P. J., & Haggerty, R. J. (1994). Reducing risks for mental disorders: Frontiers for preventive intervention. Washington, DC: National Academy Press.
- Vincent C. (2001) Clinical Risk Management – Enhancing patient safety, BMJ, (2nd Edition)
- Kipp D. J. and Loflin E. M. (1996) Emergency Incident Risk Management, VNR.

The End

~ Thank You ~



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