

DEVELOPMENT OF CRISIS PREVENTION MODEL FOR NON-SUICIDAL SELF-INJURY BEHAVIOUR AMONG ADOLESCENTS IN GUANGXI, CHINA

SULTAN IDRIS EDUCATION UNIVERSITY

2023

DEVELOPMENT OF CRISIS PREVENTION MODEL FOR NON-SUICIDAL
SELF-INJURY BEHAVIOUR AMONG ADOLESCENTS IN
GUANGXI, CHINA

LAN ZHENSONG

THESIS PRESENTED TO QUALIFY FOR A DOCTOR OF PHILOSOPHY

NATIONAL CHILD DEVELOPMENT RESEARCH CENTER
SULTAN IDRIS EDUCATION UNIVERSITY

2023



**INSTITUT PENGAJIAN SISWAZAH /
INSTITUTE OF GRADUATE STUDIES**

**BORANG PENGESAHAN PENYERAHAN TESIS/DISERTASI/LAPORAN KERTAS PROJEK
DECLARATION OF THESIS/DISSERTATION/PROJECT PAPER FORM**

Tajuk / Title: DEVELOPMENT OF CRISIS PREVENTION MODEL FOR NON-SUICIDAL
SELF-INJURY BEHAVIOUR AMONG ADOLESCENTS IN GUANGXI, CHINA

No. Matrik / Matric's No.: P20191000871
Saya / I: LAN ZHENSONG

(Nama pelajar / Student's Name)

mengaku membenarkan Tesis/Disertasi/Laporan Kertas Projek (Doktor Falsafah/Sarjana)* ini disimpan di Universiti Pendidikan Sultan Idris (Perpustakaan Tuanku Bainun) dengan syarat-syarat kegunaan seperti berikut:-
acknowledged that Universiti Pendidikan Sultan Idris (Tuanku Bainun Library) reserves the right as follows:-

1. Tesis/Disertasi/Laporan Kertas Projek ini adalah hak milik UPSI.
The thesis is the property of Universiti Pendidikan Sultan Idris.
2. Perpustakaan Tuanku Bainun dibenarkan membuat salinan untuk tujuan rujukan sahaja.
Tuanku Bainun Library has the right to make copies for the purpose of research only.
3. Perpustakaan dibenarkan membuat salinan Tesis/Disertasi ini sebagai bahan pertukaran antara Institusi Pengajian Tinggi.
The Library has the right to make copies of the thesis for academic exchange.
4. Perpustakaan tidak dibenarkan membuat penjualan salinan Tesis/Disertasi ini bagi kategori **TIDAK TERHAD**.
The Library are not allowed to make any profit for 'Open Access' Thesis/Dissertation.
5. Sila tandakan (✓) bagi pilihan kategori di bawah / Please tick (✓) for category below:-

SULIT/CONFIDENTIAL

Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub dalam Akta Rahsia Rasmi 1972. /
Contains confidential information under the Official Secret Act 1972.

TERHAD/RESTRICTED

Mengandungi maklumat terhad yang telah ditentukan oleh organisasi/badan di mana penyelidikan ini dijalankan. /
Contains restricted information as specified by the organization where research was done.

TIDAK TERHAD / OPEN ACCESS

lan zhen song

(Tandatangan Pelajar/ Signature)

Tarikh: 12 September 2023

DR. PAU KEE
(1602551-PA01886)
PENGARAH

(Tandatangan Penyelia / Signature of Supervisor)
& (Nama & Cop Rasmi / Name & Official Stamp)

PUSAHA RAUNSEHNG
JABATAN HAL EHWAL PELAJAR & ALUMNI
UNIVERSITI PENDIDIKAN SULTAN IDRIS

Catatan: Jika Tesis/Disertasi ini **SULIT @ TERHAD**, sila lampirkan surat daripada pihak berkuasa/organisasi berkenaan dengan menyatakan sekali sebab dan tempoh laporan ini perlu dikelaskan sebagai **SULIT** dan **TERHAD**.

Notes: If the thesis is **CONFIDENTIAL** or **RESTRICTED**, please attach with the letter from the organization with period and reasons for confidentiality or restriction.



ACKNOWLEDGEMENT

How time flies, my more than three years of study at the Sultan Idris Education University in Malaysia are about to pass in the twinkling of an eye. Because of the epidemic, people around the world face many difficulties and challenges, and some even lose their lives. People can be quite powerless sometimes, and we cannot do much other than try to live our lives fully and cherish them. I sincerely feel lucky at this moment, but I also feel sorry for those unfortunate people. In the past three years of study, from the moment I first entered UPSI, I was very excited, and my heart was full of longing and hope. I knew why I came here, and I knew exactly what I was going to do: improve my academic ability and eventually get my Ph.D; while experiencing the multiculturalism of Malaysia. Since several obstacles stood in the way, particularly concerning COVID-19, it was not simple to get to this day.

First, I would like to thank the government of my motherland, China, and all sectors of society for their efforts to prevent and control the epidemic, which enabled me to carry out research healthily and smoothly. Secondly, I would like to thank Sultan Idris Education University and Hechi University for providing me with a good learning environment and sufficient learning resources, which enabled me to study and research easily. In particular, they offered practical online teaching tools that allowed me to efficiently finish my learning assignments while maintaining close contact with domestic tutors and colleagues.

In addition, I would like to thank my advisors, Dr. Pau Kee and Dr. Hapsah Binti Mohd Yusof, who gave me complete guidance and support, expanded my knowledge, and improved my learning ability, so that my research could proceed smoothly; I would like to thank the staffs and students of UPSI, especially staffs from NCDRC, IPS, IMC, and other departments, who have offered a great help to me during my study in Malaysia. I would also like to thank the reviewers of my thesis for their dedication, professionalism, and patience. My thesis has constantly improved through many rounds of their evaluation opinions. I would also like to thank Associate Professor Zhang Lu, Dr. Lu Ting, Dr. Ai Yan, Dr. Zhang Fang, Associate Professor Liang Fangmei, Professor Liu Xuezhen, Ms. Lai Yan, Ms. Su Zhenli, Ms. Ou Xiaoli, Ms. Zhang Fengxian, Ms. Zhou Heying and Mr. Qin Fayuan for their great help in my research in China especially during the data collection period.

Finally, I would like to thank my wife, Ms. Huang Xuefang. Ten years of companionship and patience, ten years of sharing joys and sorrows, her encouragement and support are my greatest motivation. More importantly, I want to thank my parents for allowing me to choose and follow my principles easily by showing me boundless tolerance and understanding.





ABSTRACT

This study aims to develop a comprehensive and evidence-based crisis prevention model for addressing non-suicidal self-injury (NSSI) behaviour among adolescents in GuangXi, China. The Design and Development Research (DDR) was used which includes three phases. The phase one is to understand the characteristics of adolescents' NSSI Behaviour and the need to prevent NSSI Behaviour; questionnaires and semi-structured interviews were used to investigate 2344 adolescents and 84 stakeholders in Guangxi. In phase two, literature analysis, semi-structured interviews and nominal group techniques were used to determine the main components of the NSSI crisis prevention model. Based on the opinions of 27 experts, the DEMATEL-TAISM method was used to construct the model. In phase three, the evaluation of 15 experts was collected. The focus group method was used to determine the evaluation index system of the model. The incidence rate of NSSI among adolescents in Guangxi was 17.9%, indicating an urgent need to establish a crisis prevention model for NSSI. This model consists of six dimensions and a total of 21 components. The main prevention strategies are divided into three levels: assessing the risk level of adolescents' NSSI; enhancing their ability to regulate emotions and improve their emotional state; increasing social support, creating a positive atmosphere, and providing leisure and entertainment space. Experts have reached a consensus on the integrity, applicability, effectiveness, and professionalism of the model. This study had aroused the attention to NSSI problems among adolescents, parents, teachers, schools, and experts, and to enrich the explanatory model of NSSI Behaviour crisis prevention. The overall design of the model is scientifically and reasonably constructed, which is beneficial for preventing adolescents' NSSI Behaviour in the future. However, due to the lack of detailed practical experience, some preventive elements in the model require further practical testing, particularly in terms of demonstrating the preventive effect.



PEMBANGUNAN MODEL PENCEGAHAN KRISIS UNTUK TINGKAH LAKU KECEDEeraan DIRI BUKAN BUNUH DIRI DALAM KALANGAN REMAJA DI GUANGXI, CHINA

ABSTRAK

Kajian ini bertujuan untuk membangunkan satu model pencegahan krisis yang komprehensif dan berasaskan bukti bagi tingkah laku mencederakan diri dalam kalangan remaja di GuangXi, China. Pendekatan Reka Bentuk dan Pembangunan (DDR) telah digunakan iaitu merangkumi tiga fasa. Fasa pertama adalah untuk memahami ciri-ciri tingkah laku NSSI remaja dan keperluan untuk mencegah tingkah laku NSSI, kaedah soal selidik dan temu bual separa struktur telah digunakan untuk mengumpul data dari 2344 remaja dan 84 pemegang taruh sekolah di Guangxi. Pada fasa kedua, analisis literatur, temu bual separa berstruktur dan teknik kumpulan nominal digunakan untuk menentukan komponen utama model pencegahan krisis tingkah laku NSSI remaja. Berdasarkan pandangan 27 orang pakar, kaedah DEMATEL-TAISM telah digunakan untuk membina model ini. Pada fasa ketiga, penilaian 15 orang pakar telah dikumpul. Kaedah kumpulan fokus digunakan untuk menentukan sistem indeks penilaian model. Kadar kejadian NSSI dalam kalangan remaja di Guangxi adalah sebanyak 17.9%, telah menunjukkan kesegeraan kajian diperlukan untuk membangunkan model pencegahan krisis tingkah laku untuk NSSI. Model ini terdiri daripada enam dimensi yang disokong oleh 21 komponen. Strategi pencegahan utama dibahagikan kepada tiga tahap: menilai tahap risiko NSSI remaja; meningkatkan keupayaan mereka untuk mengawal emosi dan meningkatkan keadaan emosi mereka; meningkatkan sokongan sosial, mencipta suasana positif, dan menyediakan ruang rekreasi dan hiburan. Pakar-pakar telah mencapai kesepakatan mengenai integriti, kebolegunaan, keberkesanan, dan profesionalisme model ini. Kajian ini telah menarik perhatian remaja, ibu bapa, guru, sekolah, dan pakar berkaitan isu tingkah laku NSSI, dan memperkasakan penerangan tentang model pencegahan krisis tingkah laku NSSI. Secara keseluruhan, reka bentuk model ini dilaksanakan secara saintifik dan munasabah, yang bermanfaat untuk mencegah tingkah laku NSSI remaja pada masa depan. Walau bagaimanapun, disebabkan oleh kekurangan pengalaman praktikal yang terperinci, beberapa elemen pencegahan dalam model memerlukan pengujian praktikal lanjut, terutamanya dalam hal menunjukkan kesan pencegahan.

CONTENTS

	Page
DECLARATION OF ORIGINAL WORK	ii
DECLARATION OF THESIS SUBMISSION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
ABSTRAK	v
TABLE OF CONTENT	vi
LIST OF TABLES	xviii
LIST OF FIGURES	xxii
LIST OF ABBREVIATION	xxiv
LIST OF APPENDICES	xxviii
CHAPTER 1 INTRODUCTION	
1.1 Introduction	1
1.2 Research Background	2
1.3 Problem Statement	5
1.4 Research Purpose	11
1.5 Research Objectives	11
1.6 Research Questions	13
1.7 Research Significance	14
1.8 Theoretical Framework	17
1.8.1 The Explanatory Theory of Non-Suicidal Self-Injury Behaviour	18

1.8.2	The Prevention Theory of Non-Suicidal Self-Injury Behaviour	21
1.8.3	The Theoretical Framework for Non-Suicidal Self-Injury Behavioural Crisis Prevention in This Study	23
1.9	Conceptual Framework	24
1.9.1	Conceptual Operationalization	25
1.9.1.1	Crisis Prevention Model	25
1.9.1.2	Non-Suicidal Self-injury Behaviour	27
1.9.1.3	Adolescence	32
1.9.2	The Main Structure of this Study	34
1.10	Research Limitations	37
1.11	Summary	39

CHAPTER 2 LITERATURE REVIEW

2.1	Introduction	40
2.2	Overview of Guangxi, China	41
2.3	The Prevalence, Status, and Characteristics of NSSI Behaviour in Adolescents	43
2.4	Contributing Factors for Developing NSSI Behavioural Crisis Prevention Model Among Adolescents	46
2.4.1	Demographics of Adolescents	48
2.4.2	Neurobiology Functioning	49
2.4.3	Cognitive Capability	51
2.4.4	Emotional Regulation	53
2.4.5	Negative Life Experiences	55
2.4.6	Stress and Stressful Events	58
2.4.7	Adolescent Sleep Quality	59

2.4.8	Adolescent Internet Culture	62
2.4.9	Social Support System	63
2.4.10	Knowledge Gaps in the Study of NSSI Behaviour Among Adolescents	67
2.5	Functional and Explanatory Theories of NSSI Behaviour	69
2.5.1	Why Do Individuals Develop NSSI Behaviour?	70
2.5.2	How Individuals Develop NSSI Behaviour	72
2.5.3	Towards a Comprehensive Interpretation of NSSI	76
2.5.4	Knowledge Gaps in Functional and Explanatory Theories of NSSI Behaviour	80
2.6	NSSI Prevention Models and Methods	82
2.6.1	Basic Theories for Preventing NSSI Behaviour	82
2.6.2	Main Ways of Preventing NSSI Behaviour	84
2.6.2.1	Psychological Prevention Methods	84
2.6.2.2	Dialectical Behaviour Therapy	87
2.6.2.3	Family Prevention Methods	87
2.6.2.4	Social Preventions Strategies	89
2.6.3	Knowledge Gaps in the Study of NSSI Behavioural Crisis Prevention	90
2.7	Educational Crisis Prevention Models: Development and Practice	90
2.7.1	Model Development, Validation, and Usability	91
2.7.1.1	Model Development	91
2.7.1.2	Model Validation	92
2.7.1.3	Model Usability	93
2.7.2	Educational Design and Development Models	94

2.7.3	Education-Based Behavioural Crisis Prevention Models: Non-NSSI and NSSI-Specific Models	98
2.8	Summary	101

CHAPTER 3 METHODOLOGY

3.1	Introduction	104
3.2	Research Design	105
3.2.1	Introduction of the Design and Development Research (DDR) Approach	105
3.2.2	Justification for Using Design and Development Research (DDR)	107
3.3	Phase 1: Needs Analysis	109
3.3.1	Overview of the Need Analysis Phase	109
3.3.2	Participants: Phase 1	111
3.3.2.1	Recruitment Procedure: Phase 1 Questionnaire Survey	112
3.3.2.2	Recruitment Procedure: Phase 1 Interviewees	115
3.3.3	Measures: Phase 1	118
3.3.3.1	Questionnaire Survey Protocol: Phase 1	118
3.3.3.2	Semi-Structured Interview Protocol: Phase 1	122
3.3.3.3	Pilot Test of Survey Instruments: Phase 1	124
3.3.4	Data Collection and Analysis: Phase 1	126
3.3.4.1	Types of Data: Phase 1	127
3.3.4.2	Data Collection Procedures: Phase 1	127
3.3.4.3	Data Analysis: Phase 1	128
3.4	Phase 2: Design and Development of the Adolescent NSSI Behavioural Crisis Prevention Model	129

3.4.1	Overview of the Model Design and Development Phase	130
3.4.2	Key Technologies in the Design and Development Process: Phase 2	131
3.4.2.1	Grounded Theory: Phase 2	132
3.4.2.2	Nominal Group Technology (NGT): Phase 2	135
3.4.2.3	Decision-Making Trial and Evaluation Laboratory (DEMATEL): Phase 2	137
3.4.2.4	Total Antagonistic Interpretive Structural Modelling (TAISM): Phase 2	138
3.4.3	Sampling Procedure: Phase 2	140
3.4.3.1	Qualitative Sample	140
3.4.3.2	Nominal Group Technology (NGT) Sample: Phase 2	141
3.4.4	Research Measures: Phase 2	143
3.4.4.1	Semi-Structured Interview Protocol in Step 1	143
3.4.4.2	Semi-Structured Interview Protocol in Step 2	144
3.4.5	Data Collection and Analysis: Phase 2	145
3.4.5.1	Identifying the Main Components of the Adolescent NSSI Behavioural Crisis Prevention Model	146
3.4.5.2	Constructing a Comprehensive Impact Matrix of Relevant Components Using the DEMATEL Method	148
3.4.5.3	Constructing a Total Antagonistic Interpretive Structural Model Using the TAISM Method	150
3.4.5.4	Designing the Adolescent NSSI behavioural Crisis Prevention Model	159
3.5	Phase 3: Model Evaluation	160
3.5.1	Overview of Model Evaluation Phase	160

3.5.2	Focus Group Interviews: Phase 3	162
3.5.3	Interview Sample: Phase 3	163
3.5.4	Study Measures: Phase 3	166
3.5.5	Data Collection and Analysis: Phase 3	168
3.5.5.1	Determine the Evaluation Index System	168
3.5.5.2	Determining the Evaluation Grade (Comment Set)	168
3.5.5.3	Determining the Weight of Vector-Matrix A	169
3.5.5.4	Constructing the Weight Judgment Matrix R	171
3.5.5.5	Conducting the Comprehensive Evaluation	172
3.5.5.6	Data Analysis	172
3.6	Ethical Procedures	173
3.6.1	Ethical Review by the Research Ethics Committee	173
3.6.1.1	Voluntary Participation in the Study	174
3.6.1.2	Ensuring Anonymity and Confidentiality	174
3.6.1.3	Avoid Deception and Harm to Participants	175
3.6.2	Data Protection Procedures	176
3.7	Summary	176

CHAPTER 4 RESEARCH FINDINGS

4.1	Introduction	178
4.2	Phase 1: Needs Analysis	179
4.2.1	General Characteristics of Adolescents	179
4.2.1.1	Sleep (SM) and Exercise (TE) Status	179
4.2.1.2	Self-Efficacy Status (GSES)	180

4.2.1.3	Emotional Status (DASS)	181
4.2.1.4	Cognitive Emotion Regulation Questionnaire (CERQ)	182
4.2.1.5	Status of Social Support Level (CASSS)	184
4.2.1.6	Characteristics of NSSI Behaviour	185
4.2.2	Difference Test of Contributing Factors of NSSI Behaviour Among Adolescents (Demographic Variables)	204
4.2.2.1	Independent Sample T-test of Gender as an Attribute in the Contributing Factors	205
4.2.2.2	Independent Sample T-test of Ethnic Minorities as a Contributing Factors	207
4.2.2.3	Independent Sample T-test of Key Class as a Contributing Factors	208
4.2.2.4	Single-factor Analysis of Age as a Contributing Factors	209
4.2.2.5	Single-factor Analysis and Test of Academic Achievement as a Contributing Factors	212
4.2.2.6	Single-factor Analysis and Test of Family Economy as a Contributing Factors	213
4.2.3	Relationships between the Contributing Factors of Adolescent NSSI Behaviour	215
4.2.3.1	Correlation Analysis of Contributing Factors	215
4.2.3.2	Structural Equation Modelling Fit and Path Analysis of Core Variables	216
4.2.3.3	Mediating Effect Test of Contributing Factors	222
4.2.3.4	Moderating Effect Test of Contributing Factors	225
4.2.4	Discussion of the Needs Analysis Results	241
4.2.4.1	Overall Characteristics of Adolescents	241

4.2.4.2	Characteristics of NSSI Behaviour in Adolescents	243
4.2.4.3	Analysis of Contributing Factors of NSSI Behaviour among Adolescents	245
4.2.4.4	Main Causes of NSSI Behaviour in Adolescents	250
4.2.4.5	Coping Experiences of Adolescents with NSSI	252
4.2.4.6	Needs to Develop the NSSI Behavioural Crisis Prevention Model among Adolescents	254
4.2.5	Summary of Needs Analysis Phase	257
4.3	Phase 2: Design and Development of the NSSI Behavioural Crisis Prevention Model Among Adolescents in Guangxi, China	259
4.3.1	Determining the List of Components of the NSSI Behavioural Crisis Prevention Model Among Adolescents in Guangxi Province, China	260
4.3.1.1	Results of Literature Review Analysis of the Potential Components on List A of NSSI Behaviour among Adolescents	260
4.3.1.2	Interview Results of the Potential Components on List B of NSSI Behaviour Among Adolescents	266
4.3.1.3	Determining the Components of The NSSI Behavioural Crisis Prevention Model Among Adolescents Using the NGT Method	272
4.3.1.4	Saturation Inspection	278
4.3.2	Construction of an NSSI Behavioural Crisis Prevention Model Among Adolescents in Guangxi Province, China, based on the DEMATEL-TAISM Method	278
4.3.2.1	Construction of the Comprehensive Influence Matrix T of the Components of the NSSI Behavioural Crisis Prevention Model Among Adolescents in Guangxi Province, China, based on the DEMATEL Method	279

4.3.2.2	Construction of a Total Antagonistic Interpretive Structural Model of the Components of Adolescent NSSI Behavioural Crisis Prevention Model using the TAISM Method	284
4.3.3	Analysis of the Total Antagonistic Explanatory Structure Model of the Components of NSSI Behavioural Crises Prevention Model	304
4.3.3.1	Active System with Extensibility	304
4.3.3.2	Loop Analysis	305
4.3.3.3	Hierarchical Analysis and Causal Analysis	308
4.3.4	Construction of the NSSI Behavioural Crisis Prevention Model Among Adolescents in Guangxi Province, China	312
4.3.4.1	Establishing the Index System of the Adolescent NSSI Behavioural Crisis Prevention Model	312
4.3.4.2	Substitution of the "Index System" into the Adolescent NSSI Behavioural Crisis Prevention Model Among Adolescents in School Setting in Guangxi Province, China	317
4.3.5	Summary of the Analysis Results during the Model Development Phase	321
4.4	Phase 3: Evaluation of the Adolescent NSSI Behavioural Crisis Prevention Model	322
4.4.1	Determining the Evaluation Index System of the Adolescent NSSI Behavioural Crisis Prevention Model	322
4.4.2	Determining the Evaluation Index Weight Vector Matrix (A) of the Adolescent NSSI Behavioural Crisis Prevention Model	326
4.4.3	Construction of the Weight Judgement Matrix (R) of the Adolescent NSSI Behavioural Crisis Prevention Model	329
4.4.4	Synthesizing the Comprehensive Fuzzy Evaluation Results, Calculating the Weight of the Model Index, and Conducting a Comprehensive Evaluation	330

4.4.5	Discussion of the Comprehensive Evaluation of the Adolescent NSSI Behavioural Crisis Prevention Model	331
4.4.5.1	Evaluation of the Importance of the Evaluation Indicators to the Model	332
4.4.5.2	Evaluation of the importance of the evaluation indicators in the comprehensive evaluation questionnaire	333
4.4.5.3	Comprehensive Evaluation Results of the Adolescent NSSI Behavioural Crisis Prevention Model	335
4.4.6	Summary of Model Evaluation Phase	337
4.5	Summary	338

CHAPTER 5 CONCLUSION AND RECOMMENDATION

5.1	Introduction	341
5.2	Summary of Findings	342
5.2.1	Summary of the Needs Analysis Findings	342
5.2.1.1	Characteristics, Causes, and Treatment Experiences of Adolescent NSSI Behaviour	344
5.2.1.2	Main Factors Influencing Adolescents' NSSI Behaviour and the Relationship Between Them	346
5.2.1.3	The Needs Identified When Developing an Adolescent NSSI Behavioural Crisis Prevention Model	350
5.2.2	Summary of the Design and Development Model Findings	354
5.2.3	Summary of the Model Evaluation Findings	360
5.3	Implications of the Study	364
5.3.1	Theoretical Implications	364
5.3.2	Practical Implications	367
5.4	Limitations of the Study	370

5.5	Recommendations for Future research	374
5.6	Summary	375
	REFERENCES	378
	APENDICES	420

LIST OF TABLES

Table No		Page
1.1	The Main Conceptual Connotation of the "Self-Harming Behaviour"	29
1.2	Main Measurement Tools of Non-Suicide Self-Injury (NSSI) Behaviour	31
3.1	Forms and Methods of Design and Development Research	106
3.2	Basic Demographic Information of Respondents (phase 1: Questionnaire)	114
3.3	Background of Interviewee (Phase 1: Semi-structured Interview)	116
3.4	Basic Demographic Information of Respondents (phase 1: Semi-structured Interview)	116
3.5	Content of Semi-Structured Interview Protocol (Phase 1)	123
3.6	Reliability Analysis of the Questionnaire (Phase 1)	125
3.7	Content of Quantitative and Qualitative Data Analysis (Phase 1)	129
3.8	Expert Group Introduction (Phase 2)	141
3.9	Demographic Information for Expert Group (Phase 2)	142
3.10	Content of Semi-Structured Interview Protocol (Phase 2)	144
3.11	Semi-Structured Interview Protocol for Domain Experts (Phase 2)	145
3.12	Expert Group Introduction (Phase 2)	164
3.13	Demographic Information for Expert Group (Phase 3)	165
3.14	Evaluation Grade of Adolescent NSSI Behaviour Crisis Prevention Model	169
4.1	Characteristics of Life and Self-efficacy of Adolescents (N=2344)	180
4.2	Emotional Status of Adolescents (N=2344)	181
4.3	Cognitive Emotion Regulation Ability of Adolescents (N=2344)	182

4.4	Social Support Level of Adolescents (N=2344)	184
4.5	Frequency of NSSI Behaviour (N=420)	185
4.6	Suicide Intention and Treatment (N=420)	187
4.7	NSSI Information Sources and Sharing (N=420)	188
4.8	Parts of the Body Injury (N=420)	190
4.9	Types of Injury (N=420)	192
4.10	Causes of NSSI Behaviour (N=420)	194
4.11	Reasons for NSSI Based on Interviews (N=50)	196
4.12	Methods and Effects of Resisting NSSI (N=420)	199
4.13	Experience of Resisting NSSI (N=420)	201
4.14	Methods and Effects of Resisting NSSI (N=420)	202
4.15	Difference Analysis of Contributing Factors Variables and Gender (N=2344)	206
4.16	Difference Analysis of Contributing Factors Variables and Ethnic Minorities (N= 2344)	206
4.17	Difference Analysis of Contributing Factors Variables and Key Classes (N= 2344)	209
4.18	Difference Analysis of Contributing Factors Variables in Age (N= 2344)	211
4.19	Difference Analysis of Contributing Factors Variables in Academic Performance (N= 2344)	213
4.20	Difference Analysis of Contributing Factors Variables in Family Economy (N= 2344)	214
4.21	Correlation Analysis of Contributing Factors Variables (N=2344)	215
4.22	Structural Equation Model Fitting Index (1)	218
4.23	Structural Equation Model Path Coefficients (1)	219
4.24	Fitting Index of Structural Equation Model (2)	220
4.25	Structural Equation Model Path Coefficients (2)	221

4.26	Mediating Effect Test	223
4.27	Moderating Effects of Social Support and Exercise Level on Emotion Regulation Ability and NSSI	227
4.28	Moderating Effect of Parental Support on Positive Emotion Regulation Ability and NSSI	232
4.29	Moderating Effect of Support from Friends on Negative Emotion Regulation Ability and NSSI	236
4.30	Need Categories for Developing NSSI Behavioural Crisis Prevention Models for Adolescents	255
4.31	The Potential Components on List A	261
4.32	The Potential Components on List B	268
4.33	The Main Components of List C	273
4.34	Priority Rating Table for Components of NSSI Behavioural Crisis Prevention Model among Adolescents (N = 27)	277
4.35	Direct Influence Matrix (O) of NSSI Behavioural Crisis Prevention Model Components among Adolescents	281
4.36	Normalized Direct Relationship Matrix (N) of NSSI Behavioural Crisis Prevention Model Components among Adolescents	282
4.37	Comprehensive Influence Matrix (T) of NSSI Behavioural Crisis Prevention Model Components among Adolescents	283
4.38	Adjacency Matrix (A) of NSSI Behavioural Crisis Prevention Model Components among Adolescents	285
4.39	Multiplication Matrix (B) of NSSI Behavioural Crisis Prevention Model Components among Adolescents	287
4.40	Reachable Matrix (R) of NSSI Behavioural Crisis Prevention Model Components among Adolescents	288
4.41	Contracted Point Matrix (R') of NSSI Behavioural Crisis Prevention Model Components among Adolescents	289
4.42	Shrinkage Point Matrix (S') of NSSI Behavioural Crisis Prevention Model Components among Adolescents	292

4.43	General Skeleton Matrix (S) of NSSI Behavioural Crisis Prevention Model Components among Adolescents	293
4.44	General Skeleton Matrix (TS) of NSSI Behavioural Crisis Prevention Model Components among Adolescents with Impact Values	294
4.45	General Skeleton Matrix (WS) of NSSI Behavioural Crisis Prevention Model Components among Adolescents with Loop Annotated Impact Values	295
4.46	Centrality and Causality of the Integrated Impact Matrix	297
4.47	Hierarchical Diagram Extraction Process	301
4.48	Confrontation Level Extraction Results	203
4.49	Full Series Table of Causality	308
4.50	Operation Index System of NSSI Behavioural Crisis Prevention Model among Adolescents	314
4.51	Evaluation Index System of Evaluation Questionnaire	323
4.52	Evaluation Index Weight Vector Matrix(A) NSSI Behavioural Crisis Prevention Model among Adolescents	326
4.53	Entropy Method is Used to Calculate the Weight Summary of Evaluation Questionnaire Indicators	327
4.54	Weight Judgment Matrix (R) of NSSI Behavioural Crisis Prevention Model among Adolescents	329
4.55	Comprehensive Fuzzy Evaluation Scores of NSSI Behavioural Crisis Prevention Model among Adolescents in Guangxi Province, China	335

LIST OF FIGURES

No. of Figures		Page
1.1	The Theoretical Framework for the Non-Suicidal Self-Injury Behavioural Prevention Model Based on the Multi-factor Integration Theory	24
1.2	The Conceptual Framework of the NSSI Behaviour Crisis Prevention Model of among Adolescents	37
2.1	"Two-Dimensional and Four-Function" Model (Nock & Prinstein, 2004)	73
2.2	Multi-Factor Integration Model	79
2.3	The NETWASS crisis prevention model for schools	101
3.1	Model Development Process (Mohd N.B.A Rahman, 2014)	108
3.2	Flow Chart of Needs Analysis Phase	111
3.3	Flow Chart of Design and Development Phase	131
3.4	Flow Chart of the Evaluation Phase	162
4.1	Structure Path Diagram of Core Variable (1)	217
4.2	Structure Path Diagram of Core Variables (2)	220
4.3	Moderating Effect of Parental Support on Positive Emotions and NSSI	227
4.4	Moderating Effect of Friend Support on Negative Emotion and NSSI	229
4.5	Moderating Effect of Exercise Level on Negative Emotion and NSSI	230
4.6	Moderating Effect of Parental Emotional Support on Positive Emotions and NSSI	233
4.7	Moderating Effect of Friend Emotional Support on Negative Emotion and NSSI	237

4.8	Moderating Effect of Friend Information Support on Negative Emotion and NSSI	239
4.9	Moderating Effect of Friend Evaluation Support on Negative Emotion and NSSI	240
4.10	Scatter Diagram of Centrality and Causality	300
4.11	UP-DOWN Total Antagonistic Directed Topology Hierarchical Diagram	304
4.12	The NSSI Behavioural Crisis Prevention Model among Adolescents in School Setting in Guangxi Province, China	319

LIST OF ABBREVIATIONS

ACT	Assessment-Intervention-Treatment
AGFI	Adjusted Goodness of Fit Index
AMOS	Moment Structure Analysis
ANOVA	Analysis Of Variance
ARCS	Attention, Relevance, Confidence, and Satisfaction(Arcs Motivational Design Model) (Keller, 1987)
BAI	Beck Anxiety Inventory
BDI-II	Beck Depression Inventory II
BPD	Borderline Personality Disorder
CASSS	Child And Adolescent Social Support Scale
CBT	Cognitive Behaviour Therapy
CFA	Confirmatory Factor Analysis
CFEM	Comprehensive Fuzzy Evaluation Method
CFI	Comparative Fit Index
CISD	Critical Incident Stress Debriefing
CISM	Critical Incident Stress Management
CR	Critical Ratio
COVID-19	Coronavirus Disease 2019
CVI	Content Validity Index
DASS	The Depression Anxiety Stress Scale (Dass-21)
DBT	Dialectical Behaviour Therapy
DDR	Design And Development Research



DEMATEL	Decision-Making Trial and Evaluation Laboratory
DSH	Deliberate Self-Harm
DSHI	Deliberate Self-Harm Inventory
DSHI-S	The Simplified Deliberate Self-Harm Inventory
DSM	Diagnostic And Statistical Manual of Mental Disorders
DSM-5	Mental Disorders Diagnostic and Statistical Manual-5th Edition
DSM-IV-TR	Diagnostic And Statistical Manual of Mental Disorder (Revision-4)
DV	Dependent Variables
EAF	Experiential Avoidance Function
EFA	Exploratory Factor Analysis
ERP	Evaluation-Related Perfectionism
FASM	The Functional Assessment of Self-Mutilation
FGDS	Focus Group Discussions
GAN	Generative Antagonistic Network
GDP	Gross Domestic Product
GFI	Goodness Of Fit Index
GISM	Game Interpretive Structural Modeling
GSES	General Self-Efficacy Scale
HPA	The Hypothalamus-Pituitary-Adrenal
ICD	International Statistical Classification of Diseases and Related Health Problems
ID	Instructional Design
IFI	Incremental Fit Index
ISD	Instructional System Design
ISM	Explanatory Structural Modeling



IV	Independent Variable
KMO	Kaiser-Meyer-Olkin
LCM	Latent Class Modeling
LCP	Linear Constellation Precoding
LGBT	Lesbian, Gay, Bisexual and Transgender
LPA	Latent Profile Analysis
M	Men
MAXEIG	Maximum Eigenvalue (A Taxometric Methods)
MAMBAC	Mean Above Minus Below a Sliding Cut (A Taxometric Methods)
MI	Multiple Intelligence
MLE	Maximum Likelihood Estimation
N	Number Of Cases
NGT	Nominal Group Technology
NSSI	Non-Suicidal Self-Injury
NEO-I	Neuroticism-Extraversion-Openness Inventory
NEO-FFI	Neo Five-Factor Inventory
NEO PI-R	The Revised Neo Personality Inventory
OSI	The Ottawa Self-Injury Scale
PAT	Performance Analysis Model
PISMP	Program Ijazah Sarjana Muda Perguruan (College BachelorsDiploma Program)
PPS	Pressure Perception Scale
PTSD	Post-Traumatic Stress Disorder
QYLC	Questionnaire On Youth Living Conditions
RMSEA	Root-Mean-Square Error of Approximation

RTSHIA	The Risk-Taking and Self-Harm Inventory for Adolescents
RQ	Research Problem
SASII	Suicide Attempt Self-Injury Interview
SAQ	Self-Analysis Questionnaire
SB	Self-Harming Behaviour/Self-Harm Behaviour
SCID	Structured Clinical Interview Dsm
SD	Standard Deviation
SEM	Structural Equation Modeling
SH	Self-Harm
SHBQ	Self-Harm Behaviour Questionnaire
SITBI	Self-Injurious Thoughts and Behaviour Interview
SI	Self-Injury
SIB	Self-Injurious Behaviour/Self-Injury Behaviour
SIQ	Suicidal Ideation Questionnaire
SM	Self-Mutilation
SPSS	IBM Social Sciences Statistical Software Package
SPSSAU	Online SPSS Analysis Software
TAISM	Total Antagonistic Interpretive Structural Model
TLI	Tucker-Lewis Index
TUP	Technology, Usability, Pedagogy
UPSI	Universiti Pendidikan Sultan Idris

LIST OF APPENDICES

- A Mental Health Status Questionnaire for Middle School Students
- B Need Analysis of Adolescent NSSI Crisis Prevention Model Interview Protocol (Adolescents)
- C Evaluation Form of Adolescent NSSI Behaviour Components System
- D Adolescent NSSI Behaviour Crisis Prevention Model Evaluation Questionnaire
- E Authorization of Research Tools
- F Expert Basic Information Introduction (Phase2-3)
- G Ethics Review Report
- H Publications

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter discusses the background of this study and the problems that it aims to address, including the characteristics of and factors related to non-suicidal self-injury (NSSI) behaviour among Chinese adolescents and the services that the Chinese school mental health system offers to adolescents displaying NSSI behaviour. This chapter also clarifies the research objectives and questions, the significance of the study, and the theoretical and conceptual framework of this research. This chapter concludes with a general summary of the above.

1.2 Research Background

Adolescence is a transitional period for a person's physical, cognitive, social, and emotional development (Choudhury, Blakemore, & Charman, 2006). It is also a period of turbulence and psychological confusion (Thorndike, 1904). During this period, adolescents face psychological and behavioural issues, such as the development of identity positioning, the desire to be accepted and recognised by the group, and the need to adapt to their social living environment (Carlson & Heth, 2010; Kroger, 1996). The latest data show that the detection rate of psychological problems among Chinese adolescents is as high as 26.3%, and these problems mainly manifest as learning pressure, compulsion, anxiety, and other issues (Chen, Quan, Ai, Zong, & Xu, 2020). At least 30 million adolescents under the age of 17 years suffer from psychological problems, such as poor interpersonal relationships, emotional disorders, and learning adjustment disorders, or behavioural problems, such as alcohol addiction and drug use (Fu & Zhang, 2018).

NSSI is a type of intentional damage to the body without suicidal intention (Hilt, Cha, & Nolen-Hoeksema, 2008). NSSI endangers adolescents' mental and physical health and negatively affects their lives (Farber, Jackson, Tabin, & Bachar, 2007). Compared with other countries or regions, the NSSI problem among Chinese adolescents is relatively severe and needs to be resolved urgently. Due to cultural diversity and differences in research definitions, measurement tools, and statistical



methods, some studies in China have failed to fully represent the population situation of China as a whole, so cases may have gone unreported.

According to Nock (2010), adolescence is the period during which NSSI behaviour first occurs and is also the peak period for this issue. Puberty marks the beginning of NSSI. It first occurs at around 12 years of age and peaks between 15 and 16 years of age (Nock, Borges, Bromet, Alonso, Angermeyer, Beautrais, ... & Williams, 2008; Muehlenkamp, Claes, Havertape, & Plener, 2012; Griffin, 2014; Groschwitz, Kaess, Fischer, Ameis, Schulze, Brunner, ... & Plener, 2015; Lockwood, Daley, Townsend, & Sayal, 2017). Puberty continues to increase after age 14 (Baetens, Claes, Muehlenkamp, Grietens, & Onghena, 2011; Plener, Schumacher, Munz, & Groschwitz, 2015) and gradually declines during adulthood (Plener, Schumacher, Munz, & Groschwitz, 2015). Individuals displaying NSSI behaviour often use multiple self-injury methods and repeatedly harm themselves with these methods (Baetens et al., 2011; Catledge, Scharer, & Fuller, 2012). According to Esposito, Spirito, Boergers, and Donaldson (2003), adolescents who attempt suicide multiple times have a history of more severe NSSI. Research has shown that individuals displaying NSSI behaviour have a relatively high risk of suicide (Skegg, 2005), and 40–60% of suicide survivors have displayed NSSI behaviour (Hawton, Zahl, & Weatherall, 2003). Adolescents are also more likely to engage in risk-taking behaviour (Steinberg, 2010), and NSSI is a potentially fatally risky behaviour (Farber et al., 2007).





Although adolescents face an increased risk of developing NSSI during adolescence (Klonsky & Muehlenkamp, 2007; Nock, 2010), local secondary schools do not pay enough attention to adolescents' mental health. Based on the trend in NSSI statistics among Chinese adolescents in China, NSSI cases have been relatively severe. Crisis prevention provides short-term treatment to individuals, families, and groups in a crisis state (Wang, 2007; Yi, 2018). However, crisis prevention in Chinese schools does not focus sufficiently on adolescents' mental health. Available services include early evaluation, cognitive adjustment, and psychological counselling, but little attention is paid to NSSI behaviour among adolescents in these services (Xu, Chen, & Deng, 2010; Zhao, Liu, & Zhong, 2015; Wang, Chen, Xia, & Xu, 2017; Wu, 2017; Lin, 2019).



Guangxi, China, has 49.6 million people (about 14.3% of whom are young people aged 10–19 years). In addition, Guangxi is one of China's five ethnic minority regions. Ethnic minority populations account for about 31.4% of the total population (Statistical Bulletin of National Economic and Social Development of Guangxi, 2019). Due to the particularity of Guangxi's economic development, geographical location, and ethnic population proportion, there are few studies on NSSI among adolescents in Guangxi, and these studies primarily focused on the prevalence, characteristics, and influencing factors of NSSI among adolescents in Guangxi (Gong, Ren, Wu, Jiang, Hu, & You, 2019; Hu, Chen, & Song, 2020; Peng & Wang, 2020). To address the fact that local adolescents are faced with a greater risk of developing NSSI and the lack of attention paid to NSSI behaviour in crisis prevention, this study focuses on the



development of an NSSI crisis prevention model to provide effective prevention guidelines for adolescents displaying NSSI behaviour in Guangxi. This will increase the understanding of the overall situation of NSSI behaviour among adolescents in different regions of China, enrich the content of psychological crisis prevention services in schools, and provide NSSI behavioural crisis prevention services for adolescents, as well as teachers and experts from various professional backgrounds.

1.3 Problem Statement

NSSI behaviour among adolescents is a significant public health problem globally (Evren, Evren, Bozkurt, & Can, 2014). This behaviour not only endangers the physical and mental health of adolescents but can even lead to adolescent suicide (Hawton, Bergen, Cooper, Turnbull, Waters, Ness, & Kapur, 2015; Liu, Chen, Bo, Chen, Li, Lv, ... & Liu, 2018; Xu, Wan, & Xu, 2019). Studies have shown that people displaying NSSI behaviour are at a high risk of suicide, and their suicide mortality rate is 42 times higher than that of the general population (Colman, Dryden, Thompson, Chahal, Borden, Rowe, & Voaklander, 2004). However, there is a complex relationship between NSSI and suicide, as both threaten adolescents' physical and mental health and negatively impact their lives (Farber, Jackson, Tabin, & Bachar, 2007). Although juvenile suicide is relatively rare compared with juvenile non-fatal self-injury, the pain that adolescent suicide causes makes the prevention of adolescent suicide a core issue

in the national suicide prevention strategy. A survey found that about 10% of adolescents have self-injured, and self-injuries gradually increase after 12 years of age (Hawton, Saunders, & O'Connor, 2012). Therefore, there is a great urgency to formulate an NSSI crisis prevention model to help prevent NSSI among adolescents.

The incidence of NSSI behaviour among adolescents varies significantly from country to country, but the prevalence of NSSI among Chinese adolescents is 5.4%–57.4% (Zheng, 2006; Wan, Hu, Hao, Sun, & Tao, 2011; Yan, Zhu, Situ, Du, & Huang, 2012; Wang, Sun, Lin, Jin, Liang, Xu... & Zhu, 2016; Tang, Chen, Lu, Fu, Hu, Zhan, & Huang, 2018), which is greater than in western countries (6.2%–45%) (Muehlenkamp, Swanson, & Brausch, 2005; Greydanus & Shek, 2009; Duggan, Heath, & Hu, 2015; Plener et al., 2015; Zubrick, Hafekost, Johnson, Lawrence, Saw, Sawyer & Buckingham, 2016). This may be due to the inconsistencies in the standards for defining NSSI, the different evaluation tools used, or the differences in cultural characteristics and economic development levels in different regions. Previous research has indicated that there are also racial disparities in NSSI prevalence (Gratz, Litzman, Young, Heiden, Damon, Hight, & Tull, 2012; Whitlock, Muehlenkamp, Eckenrode, Purington, Abrams, Barreira, & Kress, 2013), with ethnic or racial identity acting as a protective factor for some groups (Croyle & Waltz, 2007). For young people living in ethnic areas, investigating whether their stress levels contribute to NSSI behaviour due to ethnic differences is worth exploring. Therefore, this study investigates the association between stress and NSSI among adolescents from different ethnic regions

within China.

At present, there is much research globally on adolescent NSSI, but there is little research on adolescent NSSI in Guangxi (Gong, Ren, Wu, Jiang, Hu, & You, 2019; Hu, Chen, & Song, 2020; Peng & Wang, 2020). Further exploration of the characteristics of adolescent NSSI and whether they differ in Guangxi, the severity of the NSSI problem, and the appropriateness of intervening to address adolescent NSSI is also needed. Only by understanding the basic situation of NSSI behaviour among adolescents in Guangxi can we develop an adolescent NSSI crisis prevention model that is most suitable for this region.

Many factors affect adolescents' NSSI behaviour, such as their biology, cognition, emotions, adverse life events, stress, and so on (Klonsky, 2007ab; Nock & Mendes, 2008; Wang, Zhang, Li, Zhang, Yang, & Zhang, 2011; In-Albon, Bürli, Ruf, & Schmid, 2013; Fredlund, Svedin, Priebe, Jonsson, & Wadsby, 2017; Sami et al., 2018). Hormones such as endogenous opioid peptides affect individuals' pain perception, which, in turn, affects their mood regulation, and the resulting emotional disorders may cause NSSI behaviour (Klonsky, 2007; Sher & Stanley, 2009; Jiang & Ling, 2011; Zhao, 2012; Bresin & Gordon, 2013; Song, 2017). The level of an individual's physical exercise may also affect their hormonal balance, which can affect their emotional state (Wallenstein & Nock, 2007; Rasmussen & Hawton, 2014).

Self-efficacy may also impact an individual's emotional regulation. The influence of self-efficacy's positive and negative functions on individual NSSI behaviour should, therefore, be appropriately expanded (Laye & Schonert-Reichl, 2005; Klonsky, 2007). Moreover, an individual's stress status and the results of stress regulation may impact NSSI behaviour (In-Albon et al., 2013). Chinese adolescents are in a period of increasing academic and interpersonal pressure, and the factors affecting Chinese adolescents' stress status are important (Aggarwal & Berk, 2015; Jiang et al., 2018; Wang, Li, Li, 2019).

Social support systems comprising peers, families, and schools have a positive effect on the regulation of adolescents' stress, which can also affect sleep quality (Kidd, Henrich, Brookmeyer, Davidson, King, & Shahr, 2006; Shek & Yu, 2012; Law & Shek, 2013; Taliaferro, McMorris, & Eisenberg, 2018; Chen, Li, Cao, Wang, Luo, & Xu, 2020). Since the factors that affect Chinese adolescents' NSSI behaviour are so diverse, it is necessary to conduct a more in-depth exploration of regional, cultural, and economic factors to determine those that contribute most to NSSI behaviour and how these can be addressed in a crisis prevention model for Chinese adolescents.

In existing studies, scholars have fully explained the causes and mechanisms of NSSI behaviour in adolescents from the perspectives of biological theory, environmental theory, emotional management theory, and comprehensive interpretation theory (Gratz, 2002; Sher & Stanley, 2009; Nock, 2009; Hawton,

Saunders, & O'Connor, 2012). These explanations provide a solid theoretical basis for the effective prevention of NSSI among adolescents. However, the applicability of these theoretical models may vary in different periods, cultures, and groups. Therefore, to fill this gap, it is necessary to further explore or verify the causes and mechanisms of NSSI behaviour among adolescents in Guangxi to develop a more suitable NSSI crisis prevention model for adolescents in this region. Previous research has shown that it is effective to prevent and intervene in adolescents' NSSI behaviour through medication, cognitive behavioural intervention, support, or the improvement of the individual's familial and social environment (Chapman, Gratz, & Brown, 2006; Hankin & Abela, 2011; In-Albon et al., 2013). Specifically, educational activities in the community are conducive to preventing and regulating NSSI behaviour (Zhang & Zhao, 2014).

In China, as early as 2004, the government issued guidelines for treating and managing NSSI (Xu & Guo, 2006). Some Chinese scholars also began to gradually explore the practice of social work intervention for NSSI (Xu, Chen, & Deng, 2010; Zhou, 2013) or intervention in NSSI treatment through early assessment, cognitive adjustment, psychological counselling, care and support, and educational guidance (Xu, Chen, & Deng, 2010; Zhao, Liu, & Zhong, 2015; Wang, Chen, Xia, & Xu, 2017; Wu, 2017; Lin, 2019). Alternatively, scholars used box-court therapy to intervene with adolescents who were displaying NSSI behaviour (Lin, 2019). Other scholars have summarised the behavioural prevention and intervention mechanisms for NSSI among adolescents and developed specific intervention strategies (Zhang, 2015; Zhao, Liu, &

Zhong, 2015). Although the above research has provided empirical evidence for the prevention of and intervention in adolescent NSSI behaviour, most of these studies only assessed adolescent NSSI behaviour from a micro perspective, lacking a consideration of multiple factors, such as the adolescent's family, school, and social background. In addition, 'prevention is more important than cure' (Luburic, 2019). Therefore, to alleviate adolescents' suffering due to NSSI, it is necessary to construct a comprehensive model for adolescent NSSI behavioural crisis prevention.

This study focuses on NSSI crisis prevention, specifically developing a model that can guide NSSI prevention. There is a need for this research to bridge the gaps in previous research and highlight the local cultural context in a crisis prevention model. Establishing an NSSI behavioural crisis prevention model with multi-dimensional prevention for adolescents is necessary. This model should be a comprehensive and systematic prevention process model that is suitable for adolescents in Guangxi and considers the cultural characteristics of the region. In addition, the model should not only focus on the psychological and behavioural changes in adolescents displaying NSSI behaviour but should also focus on the influence of peers, families, schools and society on adolescents' functioning.



1.4 Research Purpose

The primary purpose of this research is to understand the types and characteristics of NSSI behaviour, as well as the factors that contribute to it, among adolescents in the unique regional, cultural, and economic development background of Guangxi and establish a crisis prevention model for NSSI behaviour among adolescents to help prevent and alleviate the adverse effects of this behaviour and promote the development of their physical and mental health.

1.5 Research Objectives



This research involves three phases of design and development research methods in response to the following research objectives: The first phase adopts the form of literature review analysis and a questionnaire survey to obtain the main types, characteristics, and causes of NSSI behaviour among adolescents and the factors contributing to it as they relate to NSSI crisis prevention in the school setting of Guangxi, as well as analysis of the needs of the development model based on in-depth interviews. The second phase involves utilising interpretive structural modelling (ISM) technology. This phase also involves cooperating with NSSI field experts, education experts, psychologists, and social workers to determine the main components of the NSSI behavioural crisis prevention model so that it can be designed and developed for



adolescents in Guangxi. Finally, in the third phase, the Fuzzy Delphi method is used to evaluate the effectiveness of the NSSI behavioural crisis prevention model for adolescents in Guangxi with the help of evaluation and education experts, psychological counsellors, and social workers from the school setting. The specific research goals for each phase are as follows.

Phase 1:

- A. To identify the characteristics, causes, and coping styles of NSSI behaviour among adolescents in Guangxi.
- B. To measure the factors contributing to NSSI behaviour and their relationships with NSSI behaviour among adolescents in Guangxi.
- C. To analyse the needs for the development of the NSSI behavioural crisis prevention model from the perspectives of adolescents, parents, teachers, and experts in Guangxi.

Phase 2:

- A. To analyse and determine a list of components to be included in the NSSI behavioural crisis prevention model for adolescents in Guangxi based on experts' viewpoints.
- B. To design and develop the NSSI behavioural crisis prevention model for adolescents in Guangxi.

Phase 3:

- A. To evaluate the components of the NSSI behavioural crisis prevention model for adolescents based on experts' viewpoints.
- B. To evaluate the model overall, as well as its applicability, effectiveness, and professionalism.

1.6 Research Questions

Given the current research status of adolescents' NSSI behaviour in Guangxi, as well as the background, problems, and goals of this research, the main research questions for this study are as follows.

Phase 1:

- A. What are the characteristics, causes, and coping styles of NSSI behaviour among adolescents in Guangxi?
- B. What are the factors that contribute to NSSI behaviour and their relationships with NSSI among adolescents in Guangxi?
- C. What are the needs for developing an NSSI behavioural crisis prevention model among adolescents in Guangxi based on the viewpoints of adolescents, parents, teachers, and experts?

Phase 2:

- A. What are the components of the NSSI behavioural crisis prevention model for adolescents in Guangxi based on experts' viewpoints?
- B. What are the factors that contribute to NSSI behaviour among adolescents in Guangxi and their relationships with NSSI?

Phase 3:

- A. How are the components of the NSSI behavioural crisis prevention model for adolescents in Guangxi evaluated according to experts' viewpoints?
- B. How can the overall NSSI behavioural crisis prevention model for adolescents in Guangxi, as well as its applicability, effectiveness, and professionalism, be evaluated according to experts' viewpoints?

1.7 Research Significance

Developing a crisis prevention model for NSSI behavior among adolescents in Guangxi, China holds significant theoretical and practical significance for the prevention of NSSI behavior among adolescents. This study aids experts, scholars, adolescents, schools, and parents to better understand the characteristics, types, and mechanisms of NSSI Behaviour among adolescents in Guangxi and then provides evidence for the prevention of NSSI behaviour in future. The following are the

significance of this study from the perspectives of different stakeholders, including adolescents, parents, schools, professionals, and relevant departments:

The results of this study can help adolescents better understand NSSI behavior, including understanding the characteristics, causes, and influencing factors of self-harm. It also contributes to increasing adolescents' awareness and understanding of the relationship between self-harm behavior and emotional factors. This is crucial for adolescents as it can help them better address the issues caused by self-harm behavior and promote their overall well-being. Additionally, this study enriches the research experience on NSSI behavior among adolescents in Guangxi, further expanding the research field on NSSI issues among adolescents in Guangxi.

Through communication and cooperation with parents, it is possible to encourage parents to pay more attention to the physical, psychological, and behavioral issues of adolescents. Particularly, it is important to make parents aware of the severity of NSSI issues among adolescents and raise social awareness on NSSI problems. Parental involvement and support are essential for the prevention and intervention of self-harm issues among adolescents. Furthermore, by increasing parental awareness of adolescent self-harm behavior, it is possible to change inappropriate parenting approaches and create a more positive and supportive family environment.

Throughout the research process, this study can foster communication and cooperation among school counselors, social workers, and other relevant professionals. On one hand, it helps to enhance the attention paid by professionals such as schools and teachers to NSSI issues among adolescents, thus directing more efforts towards addressing NSSI problems in the school environment. On the other hand, schools can serve as vital settings for the prevention and intervention of self-harm behavior among adolescents. Strengthening the connection with schools facilitates future prevention and intervention efforts regarding NSSI behavior in the school environment.

A deeper understanding of the multi-level influencing factors model of adolescent self-harm behavior can assist professionals in quickly identifying and recognizing the characteristics and mechanisms behind adolescent self-harm behavior. This also provides theoretical support for crisis intervention, aiding in the development of more effective prevention and intervention measures for NSSI issues among adolescents and reducing the impact of NSSI behavior on adolescents.

The crisis intervention model for adolescent self-harm behavior provides a systematic theoretical basis for the development and improvement of school policies on adolescent mental health. It helps education policy makers and implementers better understand how to enhance prevention efforts regarding adolescent self-harm behavior. This includes providing relevant strategies and recommendations to ensure



that schools and educational institutions can better support and protect the mental health of adolescents. The results of this study can provide more specific and effective intervention measures for the prevention of self-harm behavior among adolescents. For example, the development and promotion of mental health education programs specifically tailored for adolescents. These expanded points further emphasize the importance of research on self-harm issues among adolescents and propose specific measures and directions to enhance the effectiveness of prevention and intervention work, ultimately protecting and caring for the mental and physical well-being of adolescents.



1.8 Theoretical Framework

The main purpose of this study is to construct a crisis prevention model for NSSI behaviour among adolescents in Guangxi. Therefore, the theoretical framework for this study mainly includes the explanatory theory and crisis prevention theory of NSSI behaviour.



1.8.1 The Explanatory Theory of Non-Suicidal Self-Injury Behaviour

Erikson's psycho-social developmental theory (Erikson, 1963) suggests that individuals go through eight psycho-social stages of development throughout their lives. This theory emphasizes the importance of social and psychological factors in shaping personal growth and identity formation, with each stage presenting unique challenges or crises that individuals must successfully navigate to achieve healthy psychological development.

During adolescence (12-18 years old), individuals face the developmental crisis of "identity versus role confusion." The challenge for adolescents is to form a clear and consistent self-awareness and establish their own identity. Successfully resolving this stage brings a strong sense of identity, while failure can lead to confusion and a lack of direction. Therefore, this stage is particularly relevant to the developmental issues of adolescents.

Integrating Erikson's theory into the NSSI prevention model, addressing the impact of identity development on NSSI behavior becomes crucial. Adolescents who struggle with identity formation may be more prone to engage in NSSI as a maladaptive coping mechanism. NSSI may serve as a way for them to gain a sense of control, establish a unique identity, or cope with the confusion and distress associated with identity exploration.

Additionally, incorporating Erikson's theory highlights the importance of social interactions and support systems during adolescence. As adolescents strive to establish their identity, they seek social connections and feedback from peers, family, and mentors. Prevention programs can create supportive environments that encourage positive peer relationships, open and honest communication with trusted adults, and provide opportunities for adolescents to engage in meaningful activities that promote identity exploration.

Overall, integrating Erikson's psycho-social developmental theory into the NSSI prevention model emphasizes the crucial role of identity development during adolescence and its impact on NSSI behaviors. By addressing the specific challenges and needs of adolescents in their identity formation process, prevention efforts can effectively target the underlying factors contributing to NSSI and promote healthy development.

Understanding the causes of and factors affecting adolescent NSSI behaviour plays an important role in the effective prevention of this behaviour. According to emotional management theory, the reason for the occurrence of NSSI lies in the management of negative emotions or the release of negative emotions through NSSI to alleviate the distress of these emotions (Gratz, 2002). Functional theory focuses on the function of NSSI and its effect on individuals, positing that NSSI behaviour is produced to strengthen or weaken, self-punish, or escape from one's negative



emotional experiences or behaviour (Nock & Prinsteh, 2004; Klonsky, 2007; Victor & Klonsky, 2014). Cognitive theory, on the other hand, holds that psychological disorders result from misunderstandings about environmental events, which directly affect the individual's emotional, behavioural, and physiological states (Beck, 1979; Ellis & Dryden, 2007). In addition, biosocial theory indicates that NSSI behaviour may be caused by differences in biological factors (Sher & Stanley, 2009; Jiang & Ling, 2011), while environmental theory emphasises that an imbalance in an individual's environmental system may cause physical or mental disorders (Linehan, 1993; Bornovalova, Hicks, Iacono, & McGue, 2013; Fan, 2013). In this study, various causes of and factors influencing adolescent NSSI behaviour are found. Therefore, the theoretical basis for explaining NSSI behaviour in this study is based on the multi-factor integration theoretical model. According to multi-factor integration theory, NSSI behaviour is triggered by the interactions among an individual's biological heredity, psychological state, environmental factors, and society. This theory emphasises the influence of individual biological factors, negative stressful events or social problems, and individual factors (e.g., personality or cognitive defects) on NSSI behaviour (Hawton, Saunders, & O'Connor, 2012).





1.8.2 The Prevention Theory of Non-Suicidal Self-Injury Behaviour

A crisis is the perception or experience of an event or situation as unbearably difficult or beyond the scope of an individual's existing resources and coping mechanisms (Gilliland & James, 2000). Therefore, the crisis prevention theory of NSSI behaviour in this study focuses on how to prevent adolescents from experiencing an NSSI behavioural crisis.

According to the equilibrium model, people in crisis are usually in a state of psychological and emotional imbalance, resulting in their original coping mechanisms and problem-solving methods failing to meet their needs, while the goal of crisis intervention is to help people restore this balance before the crisis (Aguilera & Messick, 1982) so that it can be prevented. According to the cognitive model, the main cause of psychological damage resulting from a crisis lies in the individual's wrong thinking about the crisis event and their surrounding environment rather than the truth of the event or the facts related to it (Beck, 1979). The psychological transformation model, on the other hand, suggests that crises may be related to internal and external (i.e., psychological, social, or environmental) difficulties. The purpose of crisis intervention is to work with helpers to identify internal and external difficulties associated with a crisis and help the individual to choose alternatives for their existing Behaviour, attitudes, and environmental resources, which will help them to gain (non-crisis) autonomous control over their lives (Hollis, 1964).





In addition, according to social support theory, the social support system as an individual experiences it can have a great impact on the NSSI Behaviour that they adopt (Yang, Ma, & Zhang, 2015). A good social support system can alleviate individuals' adverse emotional experiences, release inner negative energy, and reduce the occurrence of NSSI Behaviour (Feng, 2017). Here, crisis intervention theory highlights that crisis intervention must treat each person and each event causing the crisis as unique (Payne, 2014), and the intervention process should focus on effective relationship building, control reconstruction, problem-solving, and follow-up (Myer, Lewis, & James, 2013; Gao, Dong, Dou, & Li, 2017).

In this study, the focus of preventing NSSI behavioural crises in adolescents is addressing any cognitive errors and emotional imbalances that the adolescent may have due to physiological, psychological, and social factors, thus preventing the occurrence of NSSI Behaviour. Simultaneously, internal and external resources should be sought for adolescents, their social environmental factors should be optimised, and an effective support system should be provided to prevent the occurrence of an NSSI behavioural crisis. Furthermore, each adolescent should be regarded as a unique individual, and they should be aided in establishing good relationships to help them better rebuild and control their lives and solve problems to avoid an NSSI behavioural crisis.





1.8.3 The Theoretical Framework for Non-Suicidal Self-Injury Behavioural Crisis Prevention in This Study

Previous studies have explained the mechanisms of NSSI behaviour from multiple dimensions (Nock & Prinstein, 2004; Yates, 2004; Nock, 2009). These studies have also provided valuable guiding theories and intervention methods for the prevention of NSSI behaviour. This study advocates integrating theories to construct a crisis prevention model for NSSI behaviour because a comprehensive approach may be more effective (Washburn, Richardt, Styer, Gebhardt, Juzwin, Yourek, & Aldridge, 2012; Del Brío Ibáñez, Vázquez Fernández, & Imaz Roncero, 2019). This model mainly refers to Hawton's multi-factor integration theory model (Hawton, 2012) and combines this with the crisis prevention theory of NSSI behaviour to build a multi-level NSSI behavioural crisis prevention model.

In the analysis of the mechanisms of adolescent NSSI behaviour, it has been found that physiological factors, negative life events, and social environmental factors affect the physiological and psychological states of adolescents. Furthermore, under the action of different coping mechanisms, adolescents may have ideas about or display NSSI behaviour. Based on this hypothesis, the crisis prevention strategies for NSSI behaviour among adolescents in this study include: i) appropriate guidance for the control of emotional and psychological responses in adolescents and the enhancement of self-efficacy to help them correct cognitive, emotional, and behavioural distortions; ii) the integration of internal and external resources, such as



peer group, family, and school support, to increase adolescents' sense of security and support and improve their ability to cope with and solve crises; iii) advocacy for good sleep and moderate exercise, the regulation of the adolescent's best physical condition, and the reduction of the influence of physiological factors. The theoretical framework of the prevention model of non-suicidal NSSI behavior based on multi-factor integration theory is shown in Figure 1.1.

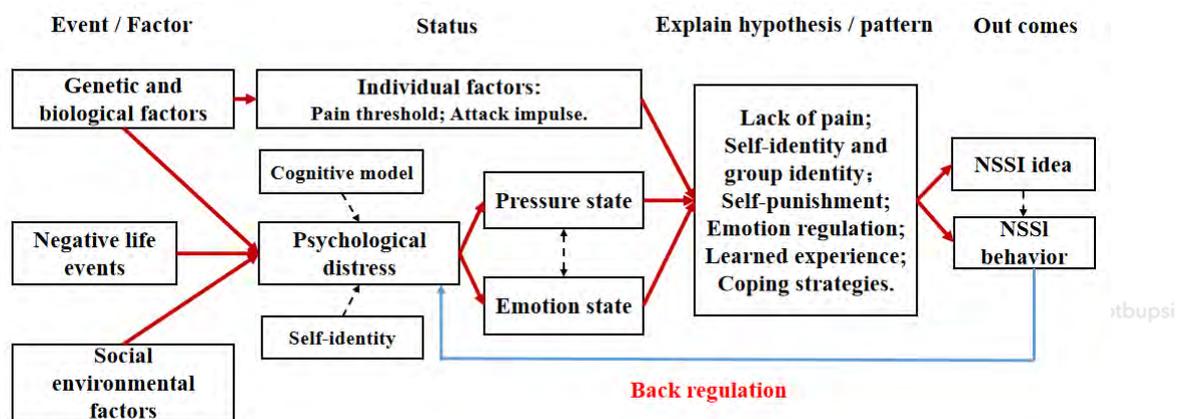


Figure 1.1. The Theoretical Framework for the Non-Suicidal Self-Injury Behavioral Prevention Model Based on the Multi-factor Integration Theory

1.9 Conceptual Framework

This part mainly continues the discussion of the concepts, operations, and definitions used in this research. Simultaneously, it introduces the main structure of this research.

1.9.1 Conceptual Operationalisation

To clarify the content and core framework of this study, the main terms of this study are introduced, and the terms are defined both conceptually and operationally.

1.9.1.1 Crisis Prevention Model

To understand how to construct a crisis prevention model for the NSSI behaviour of Guangxi adolescents, the term *crisis* should first be defined (James & Gilliland, 2016).

Kessler (2007) suggested that a crisis is a ‘short period of psychological disequilibrium that individuals experience when they can neither escape nor use existing problem-solving resources but cannot solve critical events.’ In this study, a *crisis* refers to a situation in which an adolescent cannot use their existing experiences or resources to deal with their current difficulties or situation, resulting in NSSI thoughts or behaviour.

Erikson (1963) divided life into eight stages according to Freudian psychoanalysis theory, and each stage may involve a corresponding psychological crisis. For example, puberty/adolescence may involve the crises of identity identification and role confusion, while young adulthood may involve crises related to intimacy and isolation. Crises during adulthood include those related to production and



stagnation, while there are crises related to honesty and despair during maturity. These crises can be avoided if properly handled. Aguilera and Messick (1982) also believed that balancing factors are key to determining whether a crisis will occur after a stressful event.

Since crisis intervention provides short-term treatment or adjustment methods for individuals, families, and groups in a state of crisis (Yi, 2018), its purpose is to provide support and help at any time for those who experience personal crises, get into trouble, suffer setbacks, or are about to face danger (e.g., suicide) so that their psychological balance can be restored (Wang, 2007). In this study, *crisis prevention* refers to the method and process of preventing individuals from experiencing NSSI behaviour and experiencing a psychological imbalance and functional impairment due to this behaviour to help them better live normal lives.

A model is an abstract concept depicted in graphic form that enables the reader to quickly understand the working process or activity that the researcher wants to demonstrate (Tracey & Morrow, 2006). On the one hand, models are visualised as sequence diagrams, legends, frames, structures, and external shapes, which can be considered conclusions or pictorial descriptions (Brady, 1995). On the other hand, to describe the relationships among elements within the model, the model can present each element and the relationships among elements in a phased manner (Razali, 1987). Models are also known as prototypes, templates, recipes, or ideas (Stake,



2004). In this study, a *model* refers to a system (e.g., a crisis prevention strategy) that involves the use of a set of structured and programmed graphical structures, which also list the elements of the system and the logical relations among the elements.

The *crisis prevention model* refers to a systematic NSSI behavioural crisis prevention strategy for adolescents in Guangxi that is structured and presented in a procedural, graphical form. This strategy includes the methods and processes needed to prevent individuals from experiencing NSSI behaviour and experiencing a psychological imbalance and functional impairment due to NSSI behaviour.

1.9.1.2 Non-Suicidal Self-Injury Behaviour

Since the focus of this study is the NSSI behavioural crisis intervention model for Guangxi adolescents, it is also necessary to define NSSI behaviour and introduce how it is measured.

NSSI behaviour is a type of intentional damage to the body with no suicidal intention (Hilt, Cha, & Nolen, 2008). The *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5)* lists NSSI as a condition for further study. It also suggests that it may be the focus of clinical attention, pointing out that it may occur following interpersonal dilemmas, negative feelings or thoughts, or self-criticism,

which can cause significant clinical distress and affect interpersonal, academic, or other essential functions.

The *DSM-5* also considers NSSI behaviour to be a common symptom in borderline personality disorders, as well as major depressive, anxiety, substance abuse, eating, and post-traumatic stress disorders, among others. People with other mental illnesses may also experience NSSI behaviour (Klonsky, 2007), but the behaviour will not occur during psychotic episodes, delirium, substance intoxication, or substance withdrawal. This is because what happens during a period of NSSI is conscious and deliberate (American Psychiatric Association, 2013).

Self-harming Behaviour include several types, such as self-wounding (SW), self-mutilation (SM), self-harm (SH), and NSSI. The main criteria for these definitions include sociocultural acceptance, suicidal intention, direct or indirect injury, immediate or non-immediate injury, the severity of the injury, fatality rate, and application area (see Table 1.1). However, the most accurate definition of self-harming behaviour is still under debate (Plener et al., 2015).

Table 1.1

The Main Conceptual Denotations of Self-Harming Behaviour

Key Concept	Self-Wounding	Self-Mutilation	Self-Harm	Non-Suicidal Self-Injury
Culturally Accepted	Yes	No	No	No
Suicide Attempts	Have–None	Have–None	Have–None	None
Direct/Indirect	Both	Both	Both	Direct
Intentional/ Unintentional	Intentional	Unintentional	Unintentional	Intentional
Level	Mild–Severe	Severe	Mild–Severe	Mild– Intermediate
Fatality Rate	Low–High	Low–High	Low–High	Lower
Fields Application	of Religion, anthropology, Clinical medicine, etc. etc.		Clinical etc.	medicine, Psychology, etc.

Note: Sourced from Xu (2014).

Among the most controversial definitions of self-harming behaviour are:

i) SM, which refers to deliberately destroying or damaging one's body, regardless of whether there is suicidal intention. This behaviour includes overdosing, cutting, burning, or self-shocking behaviour (National Mental Health Cooperative Center, 2004; Royal College of Psychiatrists, 2010), which can be suicidal or non-suicidal (Klonsky, 2011). However, the level of suicidal intention is not based upon this behaviour (Sheehy, Noureen, Khaliq, Dhingra, Husain, Pontin, ... & Taylor, 2019). Therefore, it is an earlier and more extensive definition of SM.

ii) NSSI, which refers to an intentional injury to the body without suicidal intention (Klonsky, 2007; Nock, 2010). NSSI is a behaviour that involves directly and consciously harming the body (Jiang, 2013; Zhang, 2015), but without the intention of committing suicide (Vega et al., 2018a). This behaviour includes cutting, beating, scratching, and burning oneself (Muehlenkamp & Gutierrez, 2004). It is used to reduce unbearable negative effects and regulate pain (Hu & Watson, 2018), as well as for emotional regulation, self-punishment, or pain (Edmondson, Brennan, & House, 2016; Klonsky, 2007; Taylor et al., 2018). The *DSM-5* considers NSSI behaviour to be a common symptom in borderline personality disorders, as well as in major depression, anxiety, substance abuse, eating, and post-traumatic stress disorders, among others (American Psychiatric Association, 2013). However, NSSI behaviour may occur in people with other mental illnesses, although it will not occur during psychotic episodes, delirium, substance intoxication, or substance withdrawal (Klonsky, 2007) since what occurs during an NSSI period is conscious and intentional (American Psychiatric Association, 2013).

From the above definition, ‘direct injury to the body intentionally and without suicidal intention’ (Muehlenkamp, 2005; Klonsky, 2007; Nock, 2010) is a universal feature of NSSI behaviour. In addition, ‘not being recognised by society’ is an important characteristic of NSSI behaviour (Hawton et al., 2012; Muehlenkamp, 2005). Many respondents in previous research have also indicated that this definition of NSSI comes closest to their behavioural intention and is thus the most acceptable

definition (Sutton, 2007). Therefore, NSSI behaviour in this study refers to behaviour involving an individual directly, consciously, and repeatedly harming their own body without suicidal intention and the individual not being accepted or recognised by society.

Currently, there are numerous measurement tools for NSSI behaviour, including the Deliberate Self-Injury Inventory (DSHI, Gratz, 2001), Suicide Attempt Self-Injury Interview (SASII, Linehan, Comtois, Brown, Heard, & Wagner, 2006), Suicidal Ideation Questionnaire (SIQ, Reynolds, 1987), Self-Injurious Thoughts and Behaviour Interview (SITBI, Nock, Holmberg, & Photos, 2007), and behaviour questionnaire for ordinary middle-school students (Zheng & Jiang, 2006; Feng & Jiang, 2008). The main measurement tools are outlined in Table 1.2.

Table 1.2

Main Measurement Tools for Non-Suicidal Self-Injury Behaviour

Measurement Tool	Measurement Point	Most Suitable Behaviour Object	
Deliberate Self-injury Inventory (DSHI)	Frequency, severity, duration, and type of self-injury	Undergraduates	17
Suicide Attempt Self-Injury Interview (SASII)	Suicidal ideation, interpersonal influence, emotional release, suicidal expression, lethality, and the likelihood of being saved	Medical population	clinical 31
Self-Injurious Thoughts and Behaviour Interview (SITBI)	Frequency and characteristics of thoughts and Behaviour related to the five types of suicidal ideation, suicidal planning, suicidal posture, attempted suicide, and non-suicidal self-harm	Out-of-hospital adolescents	169

(continue)

Table 1.2 (continue)

Measurement Tool	Measurement Point	Most Suitable Behaviour Object	
Suicidal Ideation Questionnaire (SIQ)	Suicidal ideation	Senior high-school students	22
Behaviour questionnaire for middle-school students	The manner, frequency, function, and history of self-injury	Ordinary middle-school students	20

In this study, adolescents' NSSI behaviour includes: i) the characteristics of NSSI Behaviour, such as injured body parts and the frequency and severity of self-injuries; ii) the causes and effects of NSSI behaviour, as well as the factors that influence it; iii) adolescents' willingness to display NSSI, as well as their approach to, method for, and treatment of NSSI. In this study, the Ottawa Self-Injury Inventory (OSI) is used to measure NSSI behaviour. This scale is a comprehensive measure of self-injury behaviour (Gusamrin-Marion, Martin, Deneault, Lafontaine, & Bureau, 2018), and it is further explained in Chapter 3.

1.9.1.3 Adolescence

An adolescent is a person who is between childhood and legal adulthood, ranging in age from about 10 to 19 years old (Sawyer, Azzopardi, Wickremarathne, & Patton, 2018); China has set the legal age of adolescence at under 18 years (Civil Code of the People's Republic of China, 2020). However, due to the different physical, psychological, or cultural factors of adolescents, some adolescents' cognitive and physical development

endures into their 20s (Sawyer et al., 2018).

Adolescence is a transitional stage in a person's physical and psychological development (Lenz, 2001; Hopkins, 2014). Genetic and environmental factors such as diet and exercise affect everyone's starting or ending point of puberty (Tanner & Tanner, 1990; Kaplowitz, Slora, Wasserman, Pedlow, & Herman-Giddens, 2001). Different countries or cultures, or even regions within the same country or culture, have different definitions for the age range of adolescence. Generally, the average ages at which boys and girls enter puberty are 12 and 11 years old, respectively (Kail & Cavanaugh, 2010). However, because age is only a basic indicator of adolescence, researchers have found it challenging to agree on a precise definition of adolescence (Žukauskaitė, Lašienė, Lašas, Urbonaitė, & Hindmarsh, 2005; Finley, 2007; Cooney, 2010). Adolescents' physical and mental development characteristics are also the same as those of ordinary adolescents. Therefore, we should fully understand adolescents' growth and development characteristics from different perspectives and in the context of various disciplines.

In this study, an *adolescent* is a student between the ages of 11 and 19 years who was in junior and senior high school in Guangxi in 2022. The schools that they were attending include middle schools in cities and rural areas.



1.9.2 The Main Structure of This Study

This study aims to design and establish an NSSI behavioural crisis prevention model for adolescents in Guangxi. The research process includes three parts: need analysis, design and development, and evaluation. Simultaneously, this research focuses on the overall framework of identifying, analysing, and solving specific problems, as follows:

The first part includes the background of NSSI, including the current situation and characteristics of NSSI among adolescents in Guangxi, the research questions, and the significance of these questions.



The second part is an overview of relevant theories. To begin with, the development status of adolescents' NSSI behaviour is summarised, and the basic characteristics, analysis framework, and prevention and intervention strategies for adolescent NSSI behaviour are explained. This lays the theoretical foundation for the research process of this study.

The third part involves need analysis of the NSSI behavioural crisis prevention model for adolescents in Guangxi. Through literature analysis, a questionnaire survey, and a semi-structured interview, the main characteristics and causes of NSSI behaviour among adolescents in Guangxi, as well as the factors affecting it, are investigated to understand the needs of adolescents, their parents, their teachers, and experts so that a





crisis prevention model for NSSI behaviour among adolescents in Guangxi can be developed.

The fourth part involves designing and developing a crisis prevention model for NSSI behaviour among adolescents in Guangxi. Based on experts' opinions, the components and interrelationships of the adolescent NSSI behavioural crisis prevention model are understood.

During the fifth part, the NSSI behavioural crisis prevention model for Guangxi adolescents is evaluated. Based on experts' opinions, the importance of each component of the adolescent NSSI behavioural crisis prevention model is evaluated, as well as the model as a whole and its applicability, effectiveness, and professionalism.

The sixth part includes formulating the research conclusions and prospects. The research is summarised, future research directions are suggested, and potential directions for further research on crisis prevention and intervention for NSSI behaviour among adolescents in Guangxi are proposed.

This study aims to establish a crisis prevention model for NSSI among adolescents in Guangxi. The theoretical basis for this model is the multi-factor integration model theory of NSSI behaviour. This model's design and development procedures mainly draw on the relevant research of Richey and Klein (2014) and





Rahman (2014). The design and development procedures of the model specifically include three stages, namely i) need analysis, ii) model design and development, and iii) model testing and evaluation.

The procedures and main tasks for the design and development of the crisis prevention model for NSSI Behaviour among adolescents in Guangxi are outlined in Figure 1.2. Based on the evidence from previous literature analyses, the NSSI behavioural crisis prevention model of this study mainly focuses on the six dimensions of adolescents' physical function adjustment (e.g., physical exercise and sleep quality), stress adjustment, emotional regulation, social support, and NSSI. These dimensions influence the development and design of the NSSI behavioural crisis prevention model for adolescents. Next, a group of experts uses the nominal group technique to discuss and select the list of elements involved in the above six dimensions. Then, based on their agreed-upon list, the six principal dimensions of the NSSI behavioural crisis prevention strategy are identified through the ISM method, and the relationships among these components are identified. Finally, a group of experts evaluates the model using the Fuzzy Delphi method to discover its usability and effectiveness for adolescents.



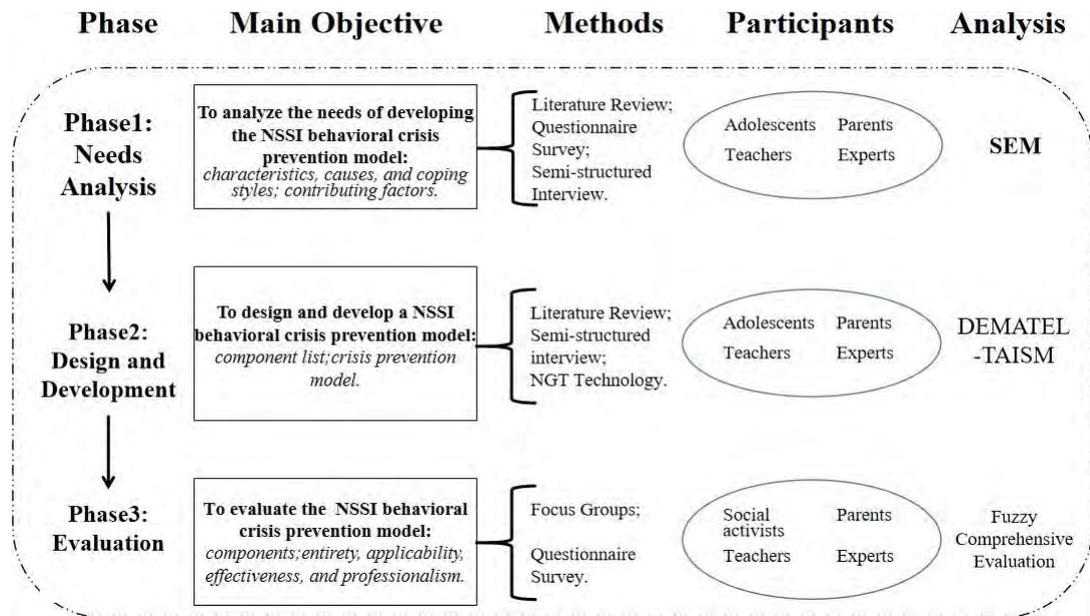


Figure 1.2. The Conceptual Framework for the NSSI Behavioural Crisis Prevention Model for Adolescents in Guangxi

1.10 Research Limitations

Due to the research conditions, available resources, time, and researchers' abilities, this research had a few limitations.

First, the sample of this study comprised only 2,344 middle-school students in 48 classes at 12 middle schools in Guangxi, even though there are about 2,460 middle and high schools of various types, with 3.84 million students in total (Guangxi Statistical Bulletin, 2018), while in China, there are about 80,000 middle and high schools of various types, with 79.45 million students in total (Statistical Bulletin of National Education Development, 2019). These two indicators in Guangxi account for



approximately 3.1% and 4.8% of the country's total. The number of middle and high schools and students in these schools in Guangxi is middling compared to those of the country's 34 other provincial regions. Due to cluster stratified sampling, the number of classes drawn from each school in this study accounted for about 20%, which was representative.

However, relative to the national total, the sample size was still tiny, so it could not fully reflect the overall situation of all Chinese adolescents' NSSI behaviour. Furthermore, due to Guangxi's economic development levels, geographical locations, and regional cultural conditions differing from those of other regions, the data could not accurately reflect the situations in other provinces.

Second, the components of the adolescent NSSI behavioural crisis prevention model were insufficient. Although this study analysed the components of the adolescent NSSI behavioural crisis prevention model through literature analysis, a questionnaire survey, and an interview, there may still have been more components to discover. Simultaneously, the diversity of features and the complexity of relationships among adolescents in the NSSI crisis prevention model affected the model overall and its effectiveness. Therefore, quickly and accurately identifying the most critical components is challenging and requires continuous exploration and validation so that the structure and components of the model can be optimised.



Finally, the effectiveness and applicability of the NSSI behavioural crisis prevention model for adolescents need more testing. As this study was cross-sectional, this model has not yet been used to develop corresponding courses or service programmes, and there was not much practical observation or measurement data. Therefore, the effectiveness and applicability of this model could not be effectively evaluated. In the future, more practices and tests will be needed to evaluate the validity and applicability of this model.

1.11 Summary

This chapter introduced the research background and outlined the main problems related to Chinese adolescent NSSI. In addition, it elaborated on the research objectives, problems, and possible limitations of this research. Finally, a brief overview and the definitions of related core concepts, theories, and theoretical models were given to clarify the research objects. The characteristics of Chinese adolescents' physical and mental health, the educational system and educational setting that they are in, and the main explanatory models, functions, and prevention methods for NSSI Behaviour, as well as the factors that contribute to it, are discussed in detail in Chapter 2.