

Perceived stress and coping strategies of Hong Kong pre-registration nursing degree students during their clinical placement

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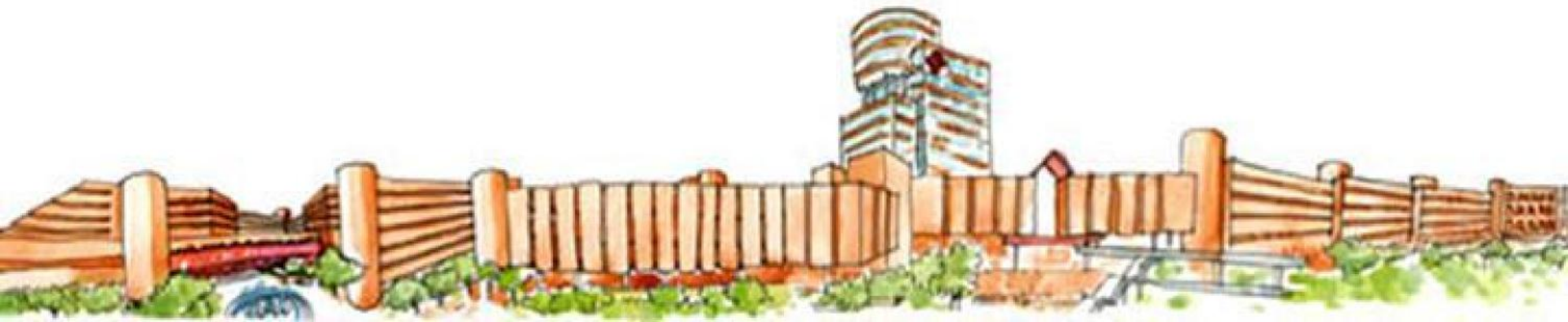
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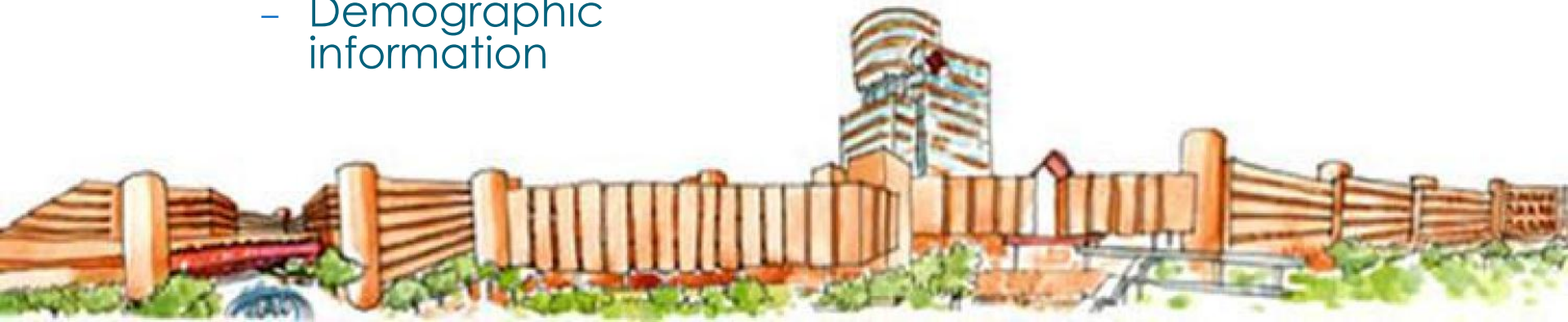
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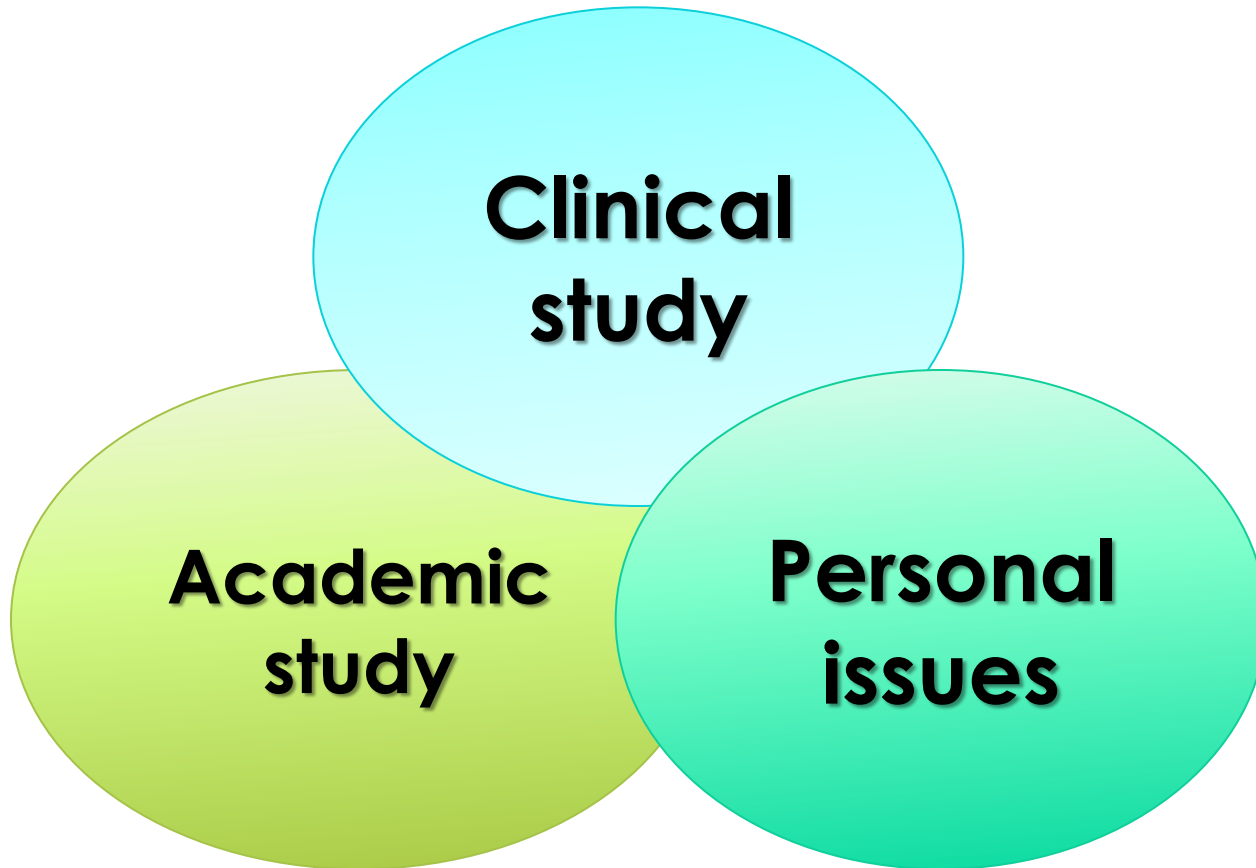


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Source of stress



What is stress?

The stress, appraisal and coping theory by Lazarus and Folkman (1984, p.19):

a particular relationship between the person and the environment that is appraised by the person as taxing and/ or exceeding his or her resources and endangering his or her wellbeing.

Responses to Stressors

- **Physiological Responses** (Burnard, Rahim, Hayes, & Edwards, 2007; Jimenez, Navia-Osorio, & Diaz, 2010; Nolan & Ryan, 2008; Sheu, Lin, & Hwang, 2002)
- **Psychological Responses** (Burnard et al, 2007; Deary, Watson, & Hogston, 2003; Evans & Kelly, 2004; Jimenez et al., 2010; Luo & Wang, 2009; Nolan & Ryan, 2008; Sheu et al., 2002; Watson, Deary, Thompson, & Li, 2008)
- **Social behavioral Responses** (Jahanpour, Kaveh, Salsali, Sharif, & Williams, 2010; Jimenez et al., 2010; Nolan & Ryan, 2008; Sheu et al., 2002)

Coping Behaviours

- **Types of coping:** Problem- focused coping and emotion-focused coping (Burnard, Rahim, Hayes, & Edwards, 2007; Evans & Kelly, 2004; Sheu, Lin, & Hwang, 2002)
- **Coping behaviours (categories):** Avoidance distraction, being optimistic, and transference (Deary, Waston, & Hogston, 2003; Sheu et al., 2002; Watson, Deary, Thompson, & Li, 2008)

Findings

- **Mostly focused on the stress during studies** (Burnard, Rahim, Hayes, & Edwards, 2007; Deary, Watson, & Hogston, 2003; Jimenez, Navia-Osorio, & Diaz, 2010; Timmins & Kaliszer, 2002; Watson et al., 2008)
- **Clinical components were more stressful than academic elements for nursing students in different countries** (Burnard et al., 2007)
- **Mostly focused on psychological and/or emotional responses to stress** (Burnard et al., 2007; Deary et al., 2003; Evans & Kelly, 2004; Luo & Wang, 2009; Watson, Deary, Thompson, & Li, 2008)
- **Limited research investigated the effects of stress relating to nursing students' responses** (Burnard et al., 2007; Deary et al., 2003; Evans & Kelly, 2004; Jahanpour, Kaveh, Salsali, Sharif, & Williams, 2010; Jimenez et al., 2010; Luo & Wang, 2008; Nolan & Ryan, 2008; Sheu, Lin, & Hwang, 2002; Watson, Deary, Thompson, & Li, 2008)
- **No detailed study done on physio-psycho-social responses of nursing students in Hong Kong**
- **There are limited studies that compare clinical stress of nursing students between different years of study in Hong Kong**

- **Aim:**

- To examine the stress of baccalaureate nursing students during clinical practices

- **Objectives:**

1. To identify and investigate the degree of stress perceived and types of stressful events during the period of clinical practice in Hong Kong;
2. To identify the physio-psycho-social status and coping strategies of nursing students during the period of clinical practice in Hong Kong;
3. To compare different stressors between two different years of students on clinical practicum in Hong Kong

Research questions

1. What are the levels and major source/s of stress for nursing students during their clinical practice?
2. What are their common physio-psycho-social responses during clinical practice?
3. What are their coping strategies of dealing with stress during clinical practice?
4. Are there any differences on outcome measures between different years of nursing students during clinical practice?

Hypothesis

Alterative: There is a difference of stress levels between year one and year three nursing students.

Null: There is no difference of stress levels between year one and year three nursing students.



Data Collection

○ Data Collection Period

From mid-May to mid-August in 2011

○ Methods

- The Chinese version of a self-report survey consisted of four parts,
 - a) Demographic data
 - b) Perceived Stress Scale (PSS)
 - c) Physio-Psycho-Social Response Scale (PPSRS)
 - d) Coping Behavior Inventory (CBI)
- distributed in person to the junior baccalaureate nursing students (Year 1)
- collected through online surveys for the senior nursing students (Year 3) of the Hong Kong Polytechnic University

Perceived Stress Scale (PSS)

- **Developed by Sheu et al. (1997)**
- **Measures**
 - the types of stressful events perceived
 - the degree of stressors that occurred during clinical practices
- **5-point Likert type scale**
- **29 items grouped under 6 sources of stress / stressors**
 1. Stress from taking care of patients
 2. Stress from teachers and nursing personnel
 3. Stress from assignments and workload
 4. Stress from peers and daily life
 5. Stress from the clinical environment
 6. Stress from lack of professional knowledge and skills
- **Higher score → higher degree of stress**

Physio-Psycho-Social Response Scale (PPSRS)

- **Developed by Sheu et al. (2002)**
- **Measures**
 - the physio-psycho-social symptoms of nursing students during their clinical placement
- **5-point Likert type scale**
- **21 items in 3 categories**
 1. Physical symptoms
 2. Emotional symptoms
 3. Social behavioral symptoms

Coping Behavior Inventory (CBI)

- **Developed by Sheu et al. (2002)**

- **Measures**

 - the coping methods that nursing students are more likely to use and their perceived effectiveness

- **5-point Likert type scale**

- **19 items in 4 categories**

1. Avoidance
2. Transference
3. Problem Solving
4. Stay optimistic

o Subject Recruited

Among all eligible 350 pre-registration undergraduate nursing students of Year 1 and 3, 200 completed and returned surveys, of which 131 is Year 1 and 69 is Year 3.

o Excluded

29 students of year 1 and no students of year 3 who have **recently experienced (within 6 months) any significant and stressful life events**, except clinical placement, were excluded from the study.

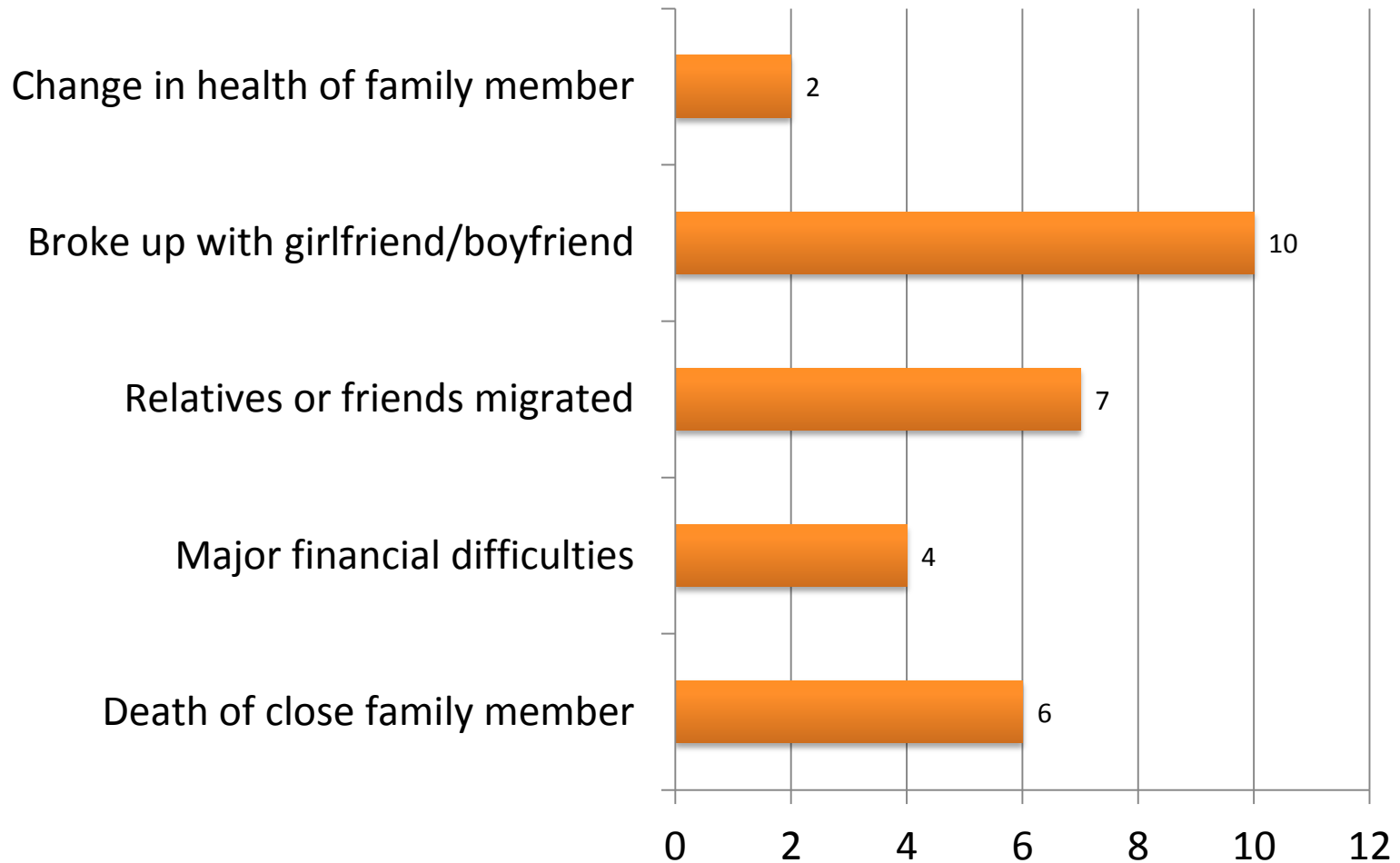
o Response Rate

$200/350 \times 100\% = 57\%$

Exclusion Criteria

Exclusion Criteria

Total no. of excluded Y1 respondents = 29





Data Analysis

○ Demographic characteristics of participants

Descriptive statistics including,

- frequency
- percentage
- mean
- standard deviation

○ Scores of items, factors and totals of PSS, PPSRS and CBI

- Mean
- Mean rank
- Ranking factor
- Standard deviation

- **Normality of data**

- Kolmogorov-Smirnov test (most data found to be not normally distributed)

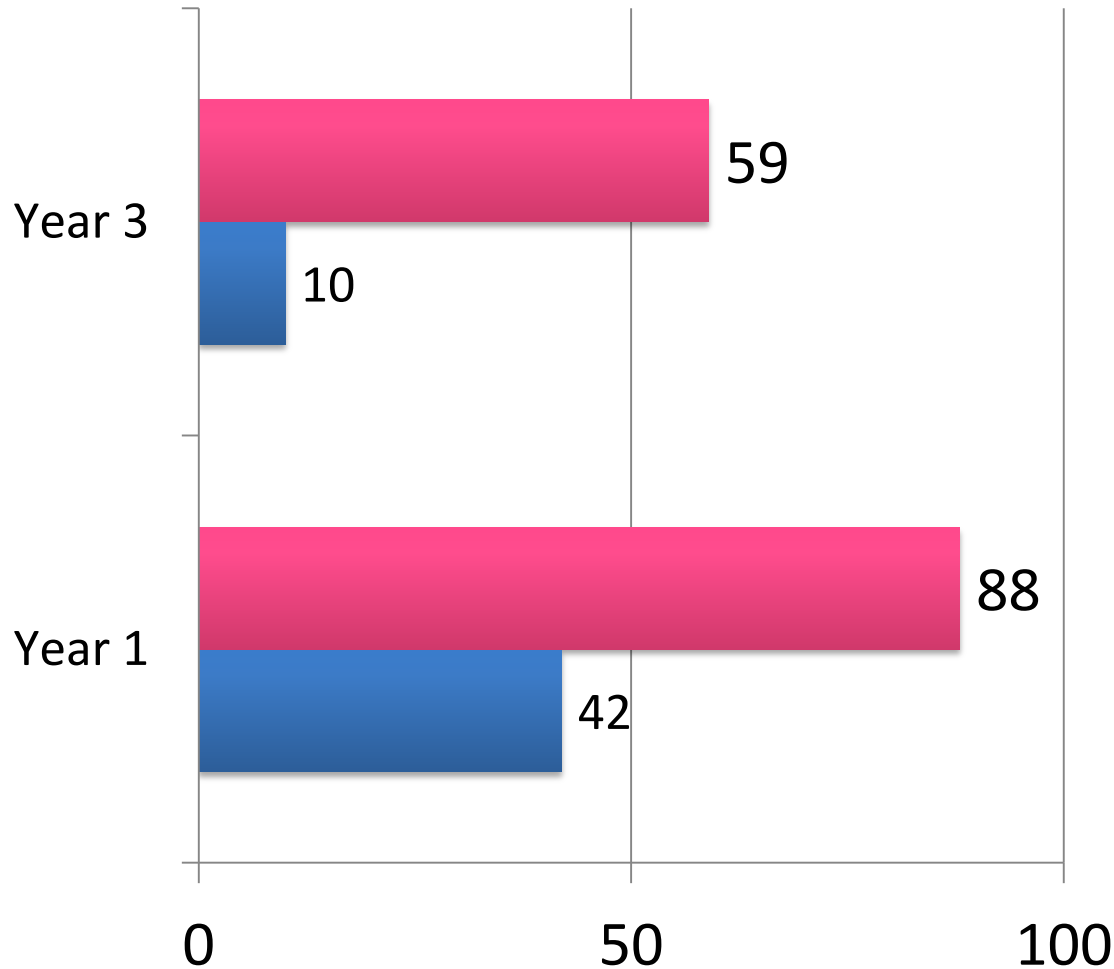
- **Differences of all item's from PSS, PPSRS and CBI between Year 1 and Year 3 students**

- Mann-Whitney U test



Demographic Information

Year of Study & Gender

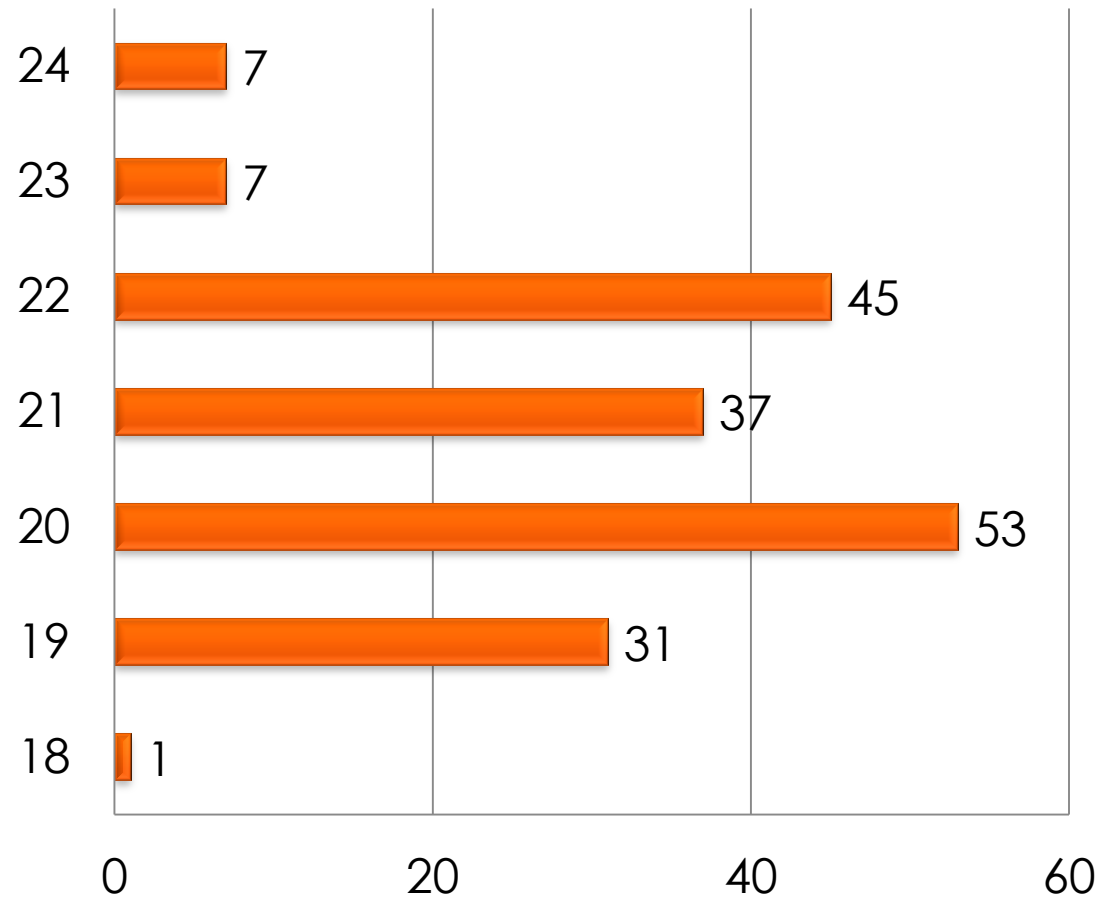


Year 1 = 131

Year 3 = 69

Age

Years



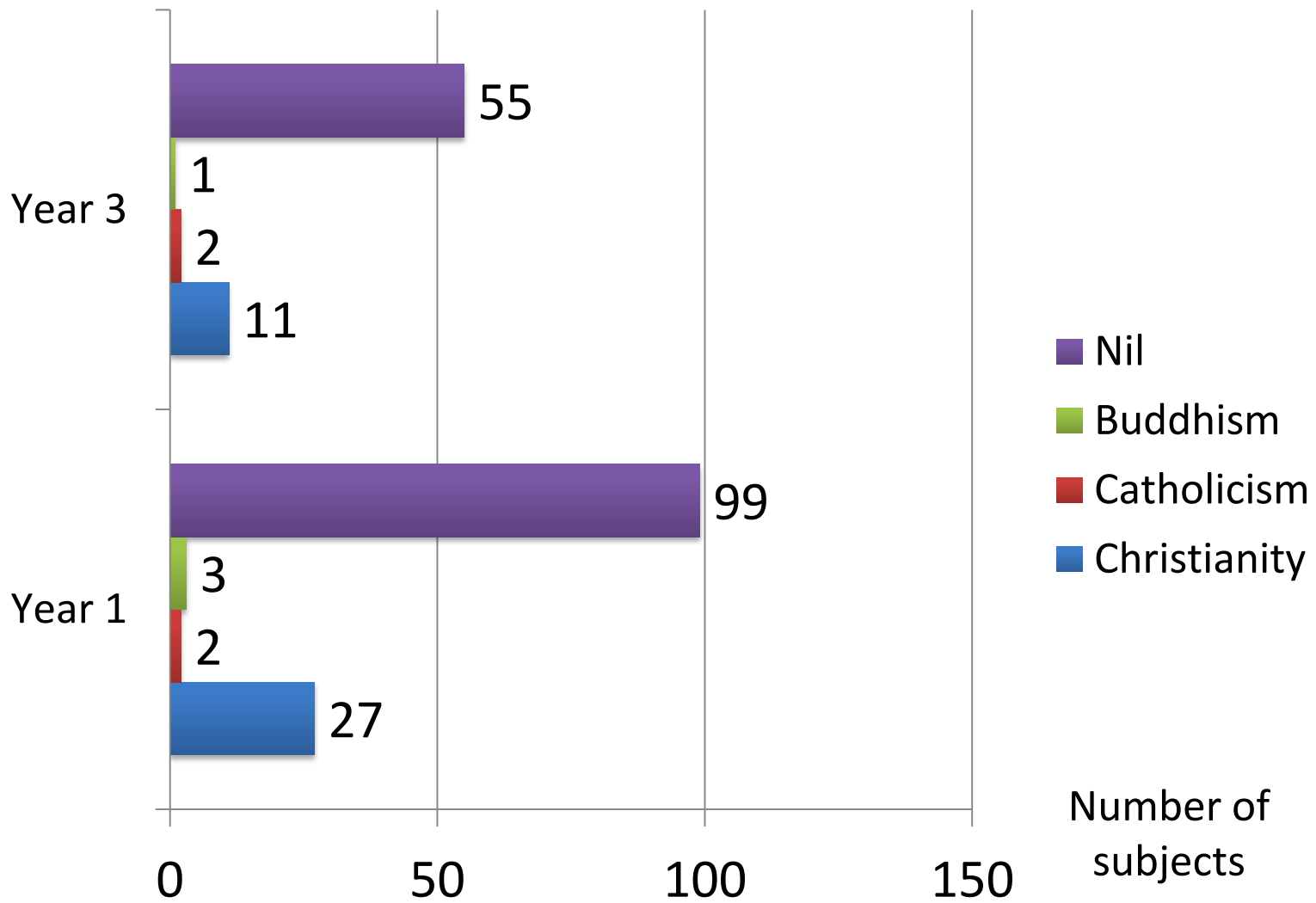
Age Range

Year 1: 18-24

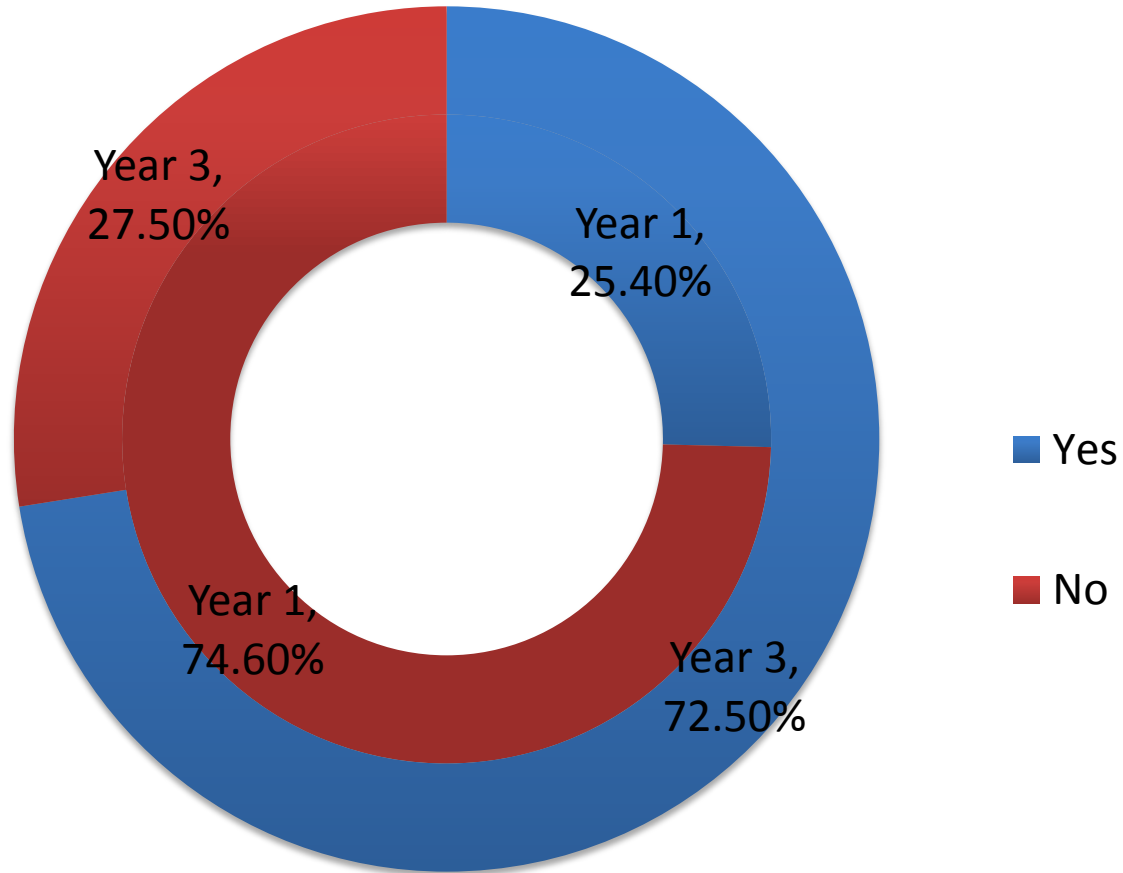
Year 3: 21-24

**Number of
all subjects**

Religions



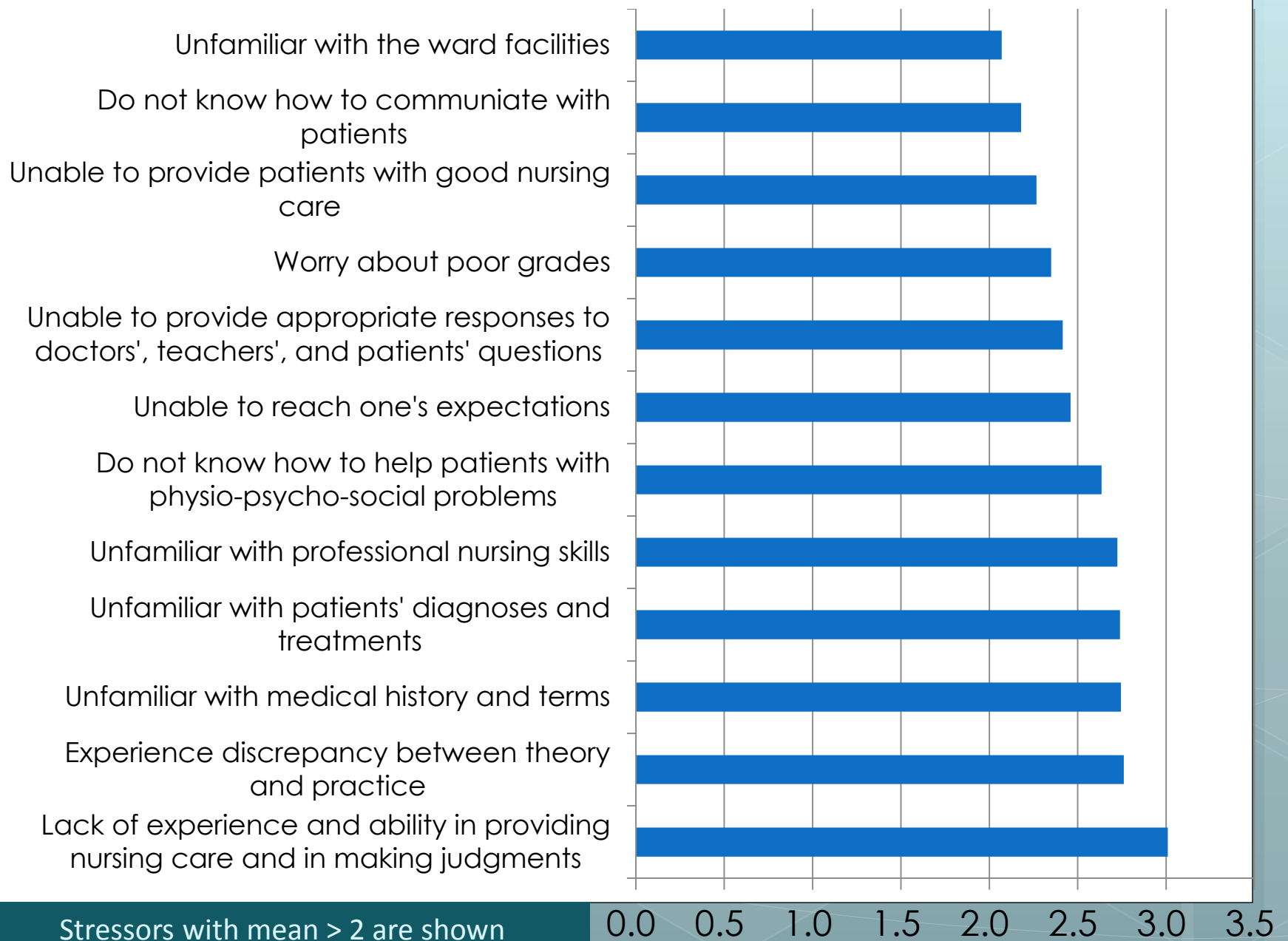
Experience in Nursing Apart from Clinical Placement





Perceived Stress Scale (PSS)

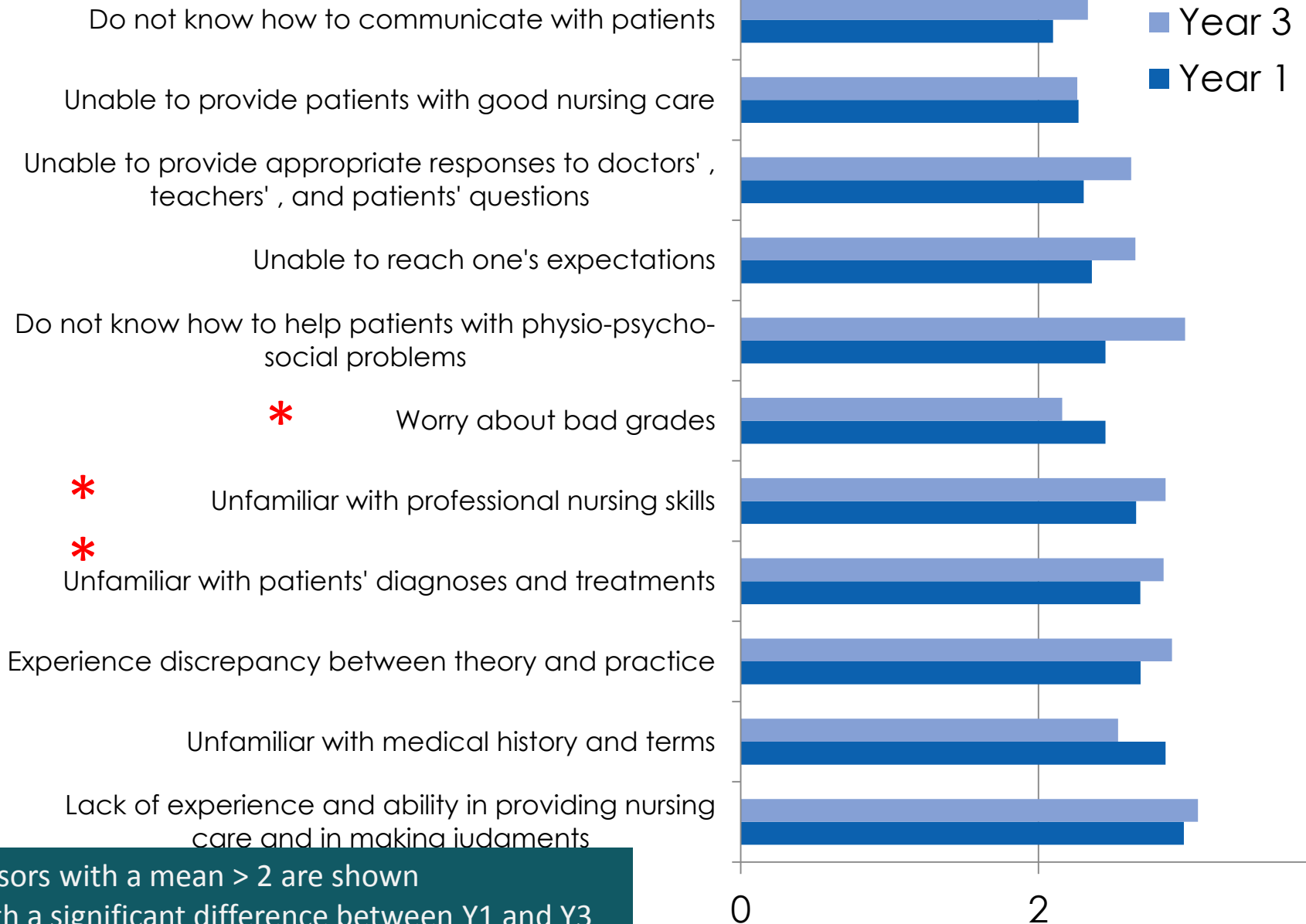
Means of Stressors (all Students)



Stressors with mean > 2 are shown

0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5

Comparison of Stressors between Y1 and Y3 Students



Stressors with a mean > 2 are shown

* With a significant difference between Y1 and Y3 students

Major Sources of Stress

Subscales with the highest number of stressors carrying a score >2 (all students)

Stress from lack of professional knowledge and skills (Factor ranking 1)	Stress from taking care of patients (Factor ranking 2)	Stress from assignments and workload (Factor ranking 3)	Stress from the environment (Factor ranking 4)	Stress from teachers and nursing staff (Factor ranking 5)	Stress from peers and daily life (Factor ranking 6)
4/4	6/8	1/5	1/3	1/6	0/4

Comparing six subscale totals

All studied students (N=200)

Overall perceived stress: Mean=2.0, SD=0.48

Subscales	Overall (N=200)			Year 1 (N=131)			Year 3 (N=69)			p
	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	
Stress from lack of professional knowledge and skills	1	2.75	0.54	1	2.73	0.56	1	2.74	0.52	0.896
Stress from taking care of patients	2	2.30	0.52	2	2.17	0.45	2	2.55	0.55	<0.001
Stress from assignments and workload	3	1.98	0.68	3	1.93	0.67	5	2.08	0.7	0.177
Stress from the environment	4	1.89	0.75	4	1.67	0.68	3	2.29	0.7	<0.001
Stress from teachers and nursing staff	5	1.74	0.64	5	1.51	0.52	4	2.18	0.63	<0.001
Stress from peers and daily life	6	1.33	0.66	6	1.16	0.6	6	1.64	0.66	<0.001

Mann-Whitney U test: There is a significant difference between two groups in those subscales with $p < 0.001$, of which Y3 > Y1.

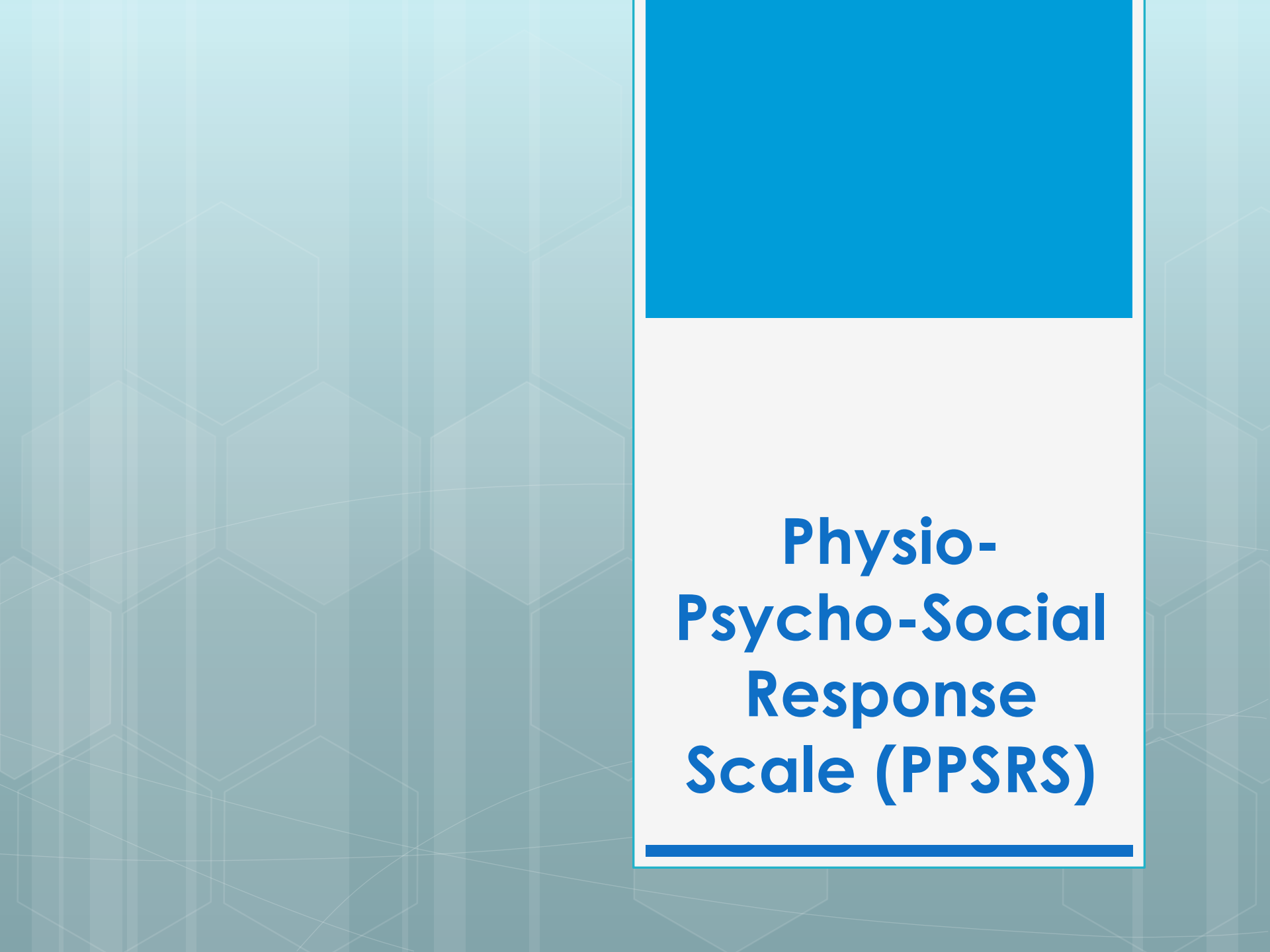
Comparison of overall perceived stress between Y1 and Y3 students

Overall perceived stress (all students)	SD
2.0	0.48

By Mann Whitney U Test

	Year of Study	N	Mean	SD
Overall perceived stress by year of study	Year 1	131	1.86	0.43
	Year 3	69	2.26	0.48

There is a statistically significant difference between year 1 and year 3 students in the overall perceived stress, of which **year 3 > year 1** ($P < 0.001$).



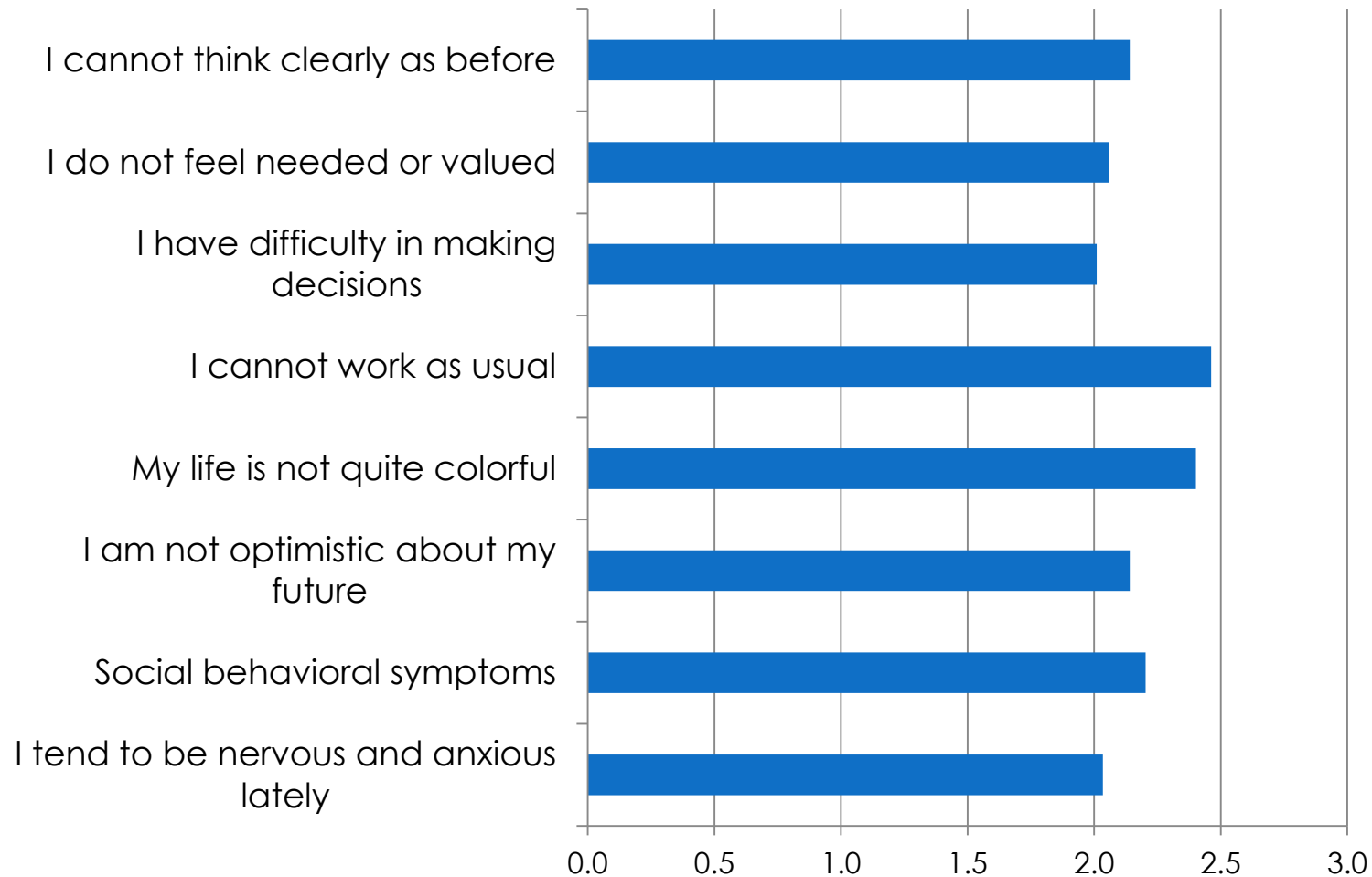
**Physio-
Psycho-Social
Response
Scale (PPSRS)**

Comparing the PPSR

Factor	Overall (N= 200)			Year 1 (N = 131)			Year 3 (N= 69)		
	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD
Social Behavioural Symptoms	1	2.20	0.64	1	2.25	0.62	1	2.12	0.67
Emotional Symptoms	2	1.44	0.82	2	1.37	0.80	2	1.57	0.83
Physical Symptoms	3	0.87	0.66	3	0.80	0.61	3	1.01	0.72
Overall physio-psycho-social-status	-	1.44	0.43	-	1.40	0.43	-	1.51	0.43

There is no significant difference between the two years

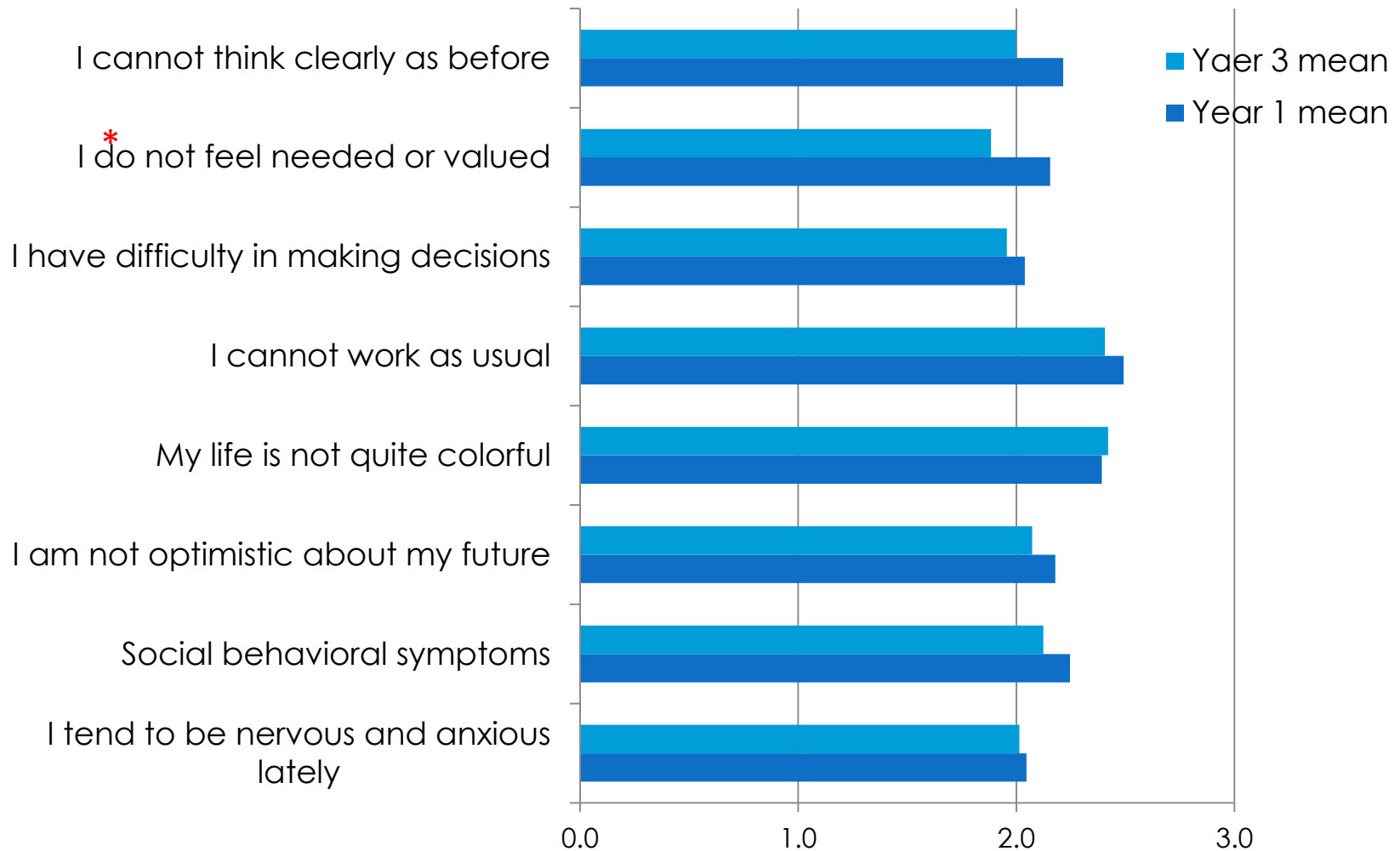
Means of PPSRS Items (all students)



Stress items with a mean ≥ 2 are shown

Mann-Whitney U Test

Comparing PPSRS items between Y1 and Y3 students



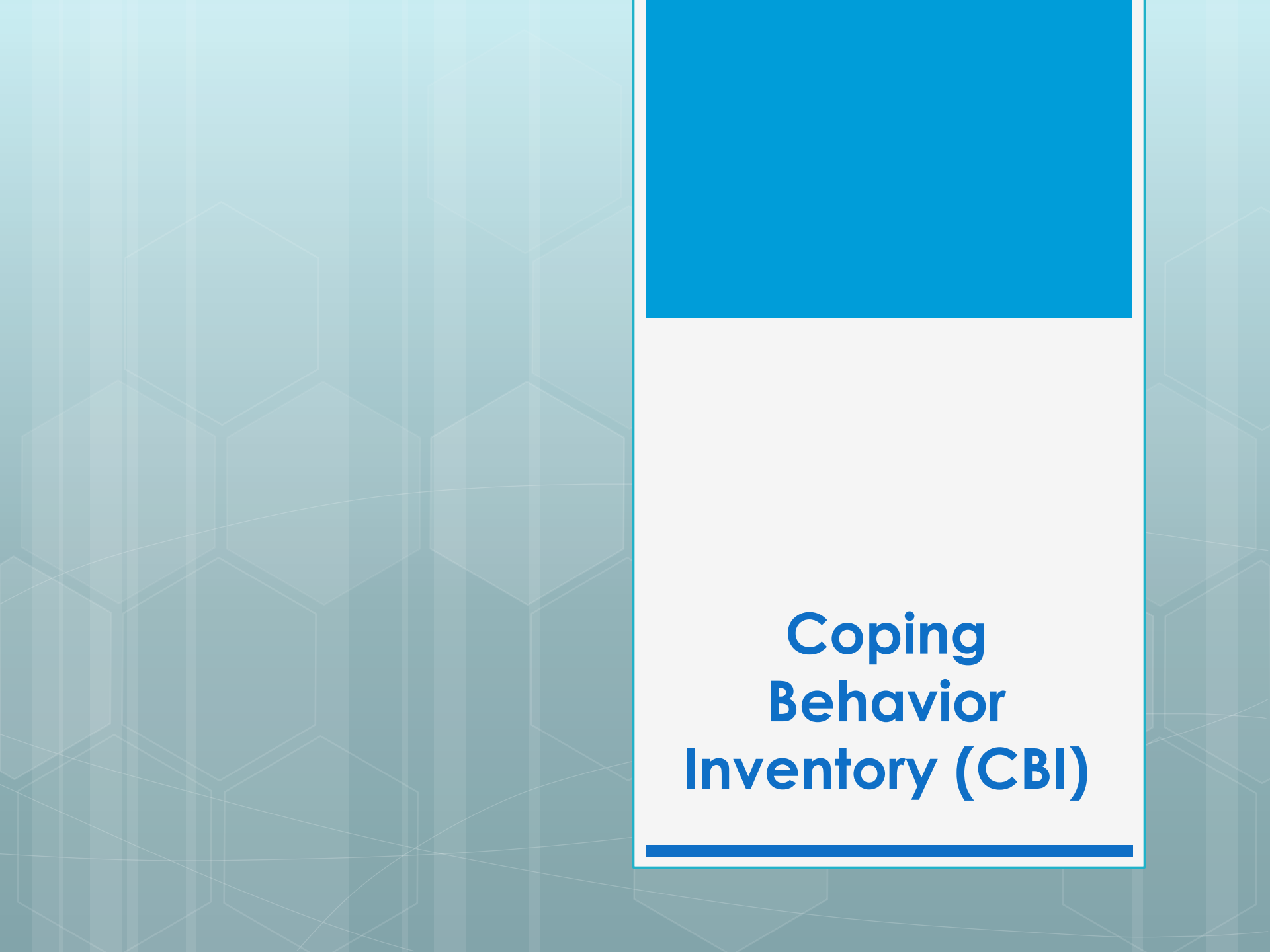
Stress items with mean scores comparable to > 2 are shown

* With significant difference between Y1 and Y3 students

Comparison of PPSRS items between Y1 and Y3 students (items with mean score < 2 are also shown)

There is a significantly difference in these items between Year 1 and Year 3.

	Year of Study	Mean	SD	<i>P</i>
I have stomachache and diarrhea	Year 1	0.893	0.971	<0.001
	Year 3	1.406	1.102	
	Total	1.070	1.044	
I catch cold more often	Year 1	0.657	0.802	<0.001
	Year 3	1.246	1.143	
	Total	0.860	0.972	
I often feel blue and depressed	Year 1	1.130	1.003	0.005
	Year 3	1.551	1.037	
	Total	1.275	1.032	
I do not feel needed or valued	Year 1	2.155	0.852	0.040
	Year 3	1.884	0.932	
	Total	2.061	0.888	



**Coping
Behavior
Inventory (CBI)**

Major Coping Categories

Subscales with highest number of coping strategies carrying a score >2 (all students)

Transference (Factor ranking 1)	Staying Optimistic (Factor ranking 2)	Problem Solving (Factor ranking 3)	Avoidance (Factor ranking 4)
4/4	3/4	4/6	0/6

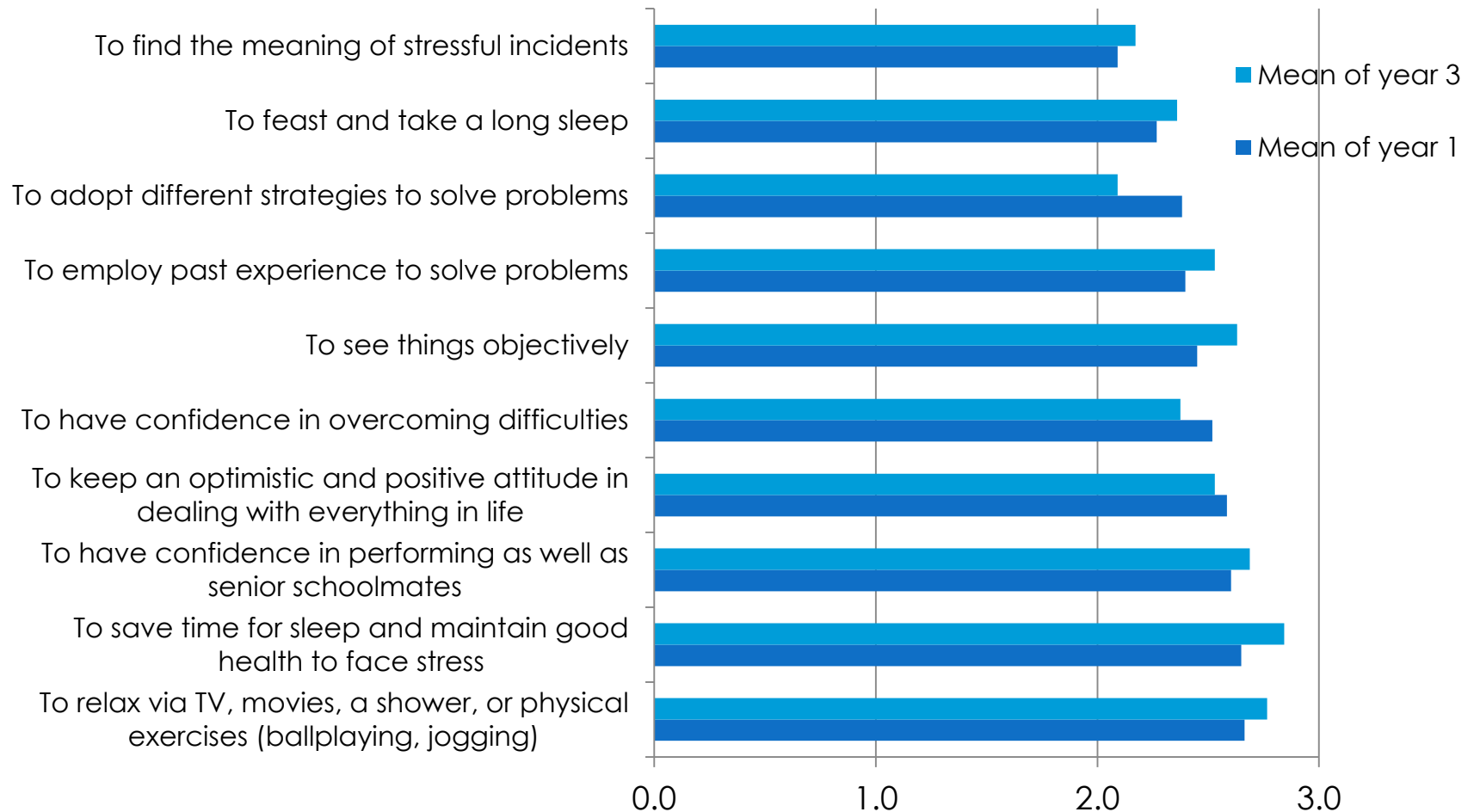
Comparing the Coping Categories (frequencies)

Subscales	Overall (N= 200)			Year 1 (N = 131)			Year 3 (N= 69)		
	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD
Transference	1	2.57	0.68	1	2.53	0.68	1	2.66	0.67
Staying optimistic	2	2.24	0.50	3	2.21	0.49	2	2.29	0.51
Problem solving	3	2.21	0.64	2	2.22	0.66	3	2.19	0.61
Avoidance	4	1.2	0.710	4	1.21	0.68	4	1.19	0.76

There is no significant difference between the two years

Mann-Whitney U Test

Coping behaviours between Y1 and Y3 nursing students



Coping behaviours with a mean > 2 are shown.

* With significant difference between Y1 and Y3 students

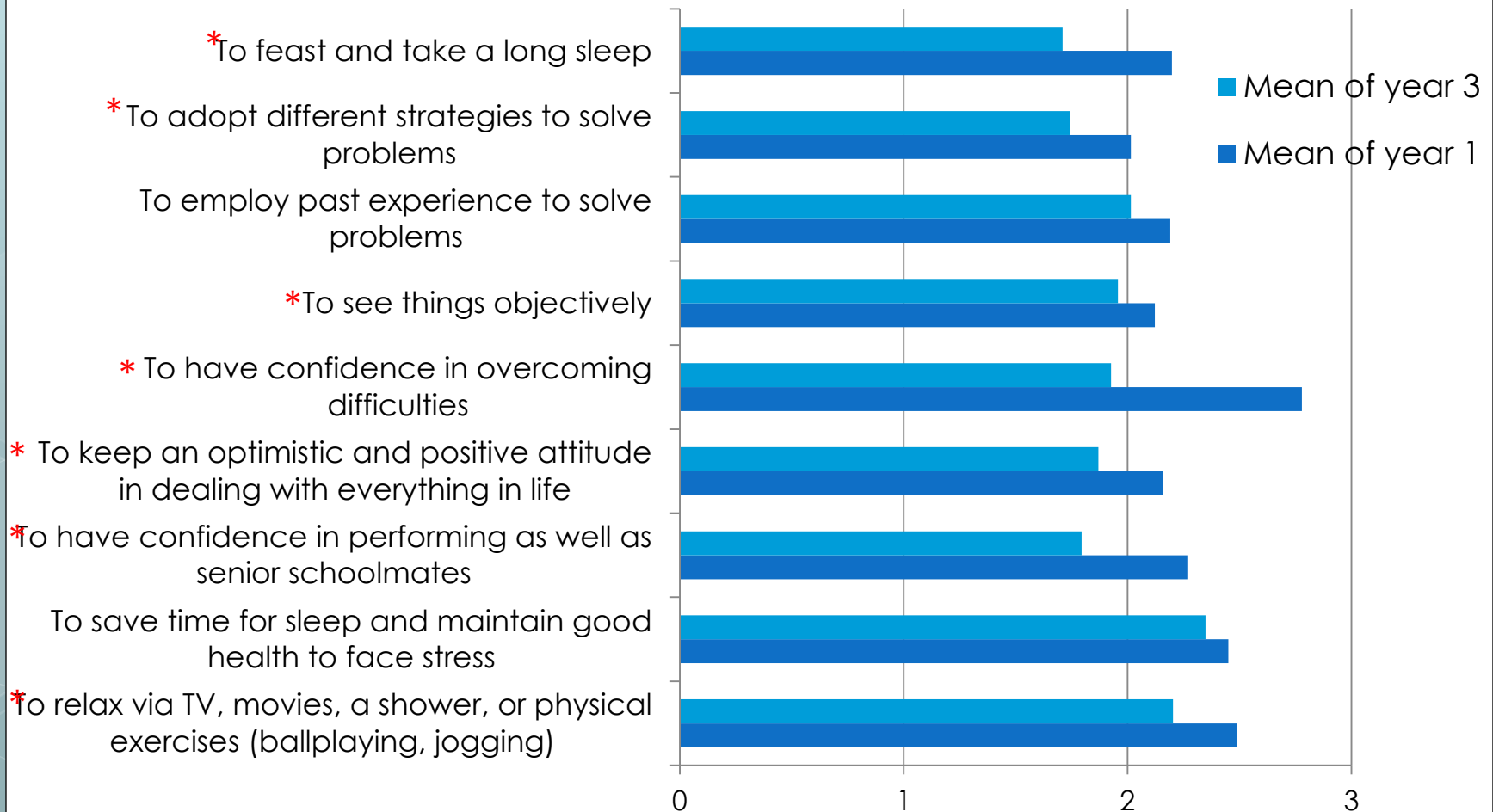
Comparing the coping categories (effectiveness)

Subscales	Overall (N= 200)			Year 1 (N = 131)			Year 3 (N= 69)			P
	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	
Transference	1	2.28	0.81	1	2.38	0.79	1	2.09	0.81	0.01
Staying optimistic	2	1.89	1.43	2	2.02	1.68	3	1.63	0.72	0.01
Problem solving	3	1.87	0.71	3	1.98	0.67	2	1.67	0.74	<0.001
Avoidance	4	0.83	0.69	4	0.94	0.73	4	0.61	0.57	<0.001

There are significant differences between the two years (Y1 > Y3)

Mann-Whitney U Test

Coping effectiveness between Y1 and Y3 nursing students



Stress behaviors with mean > 2 are shown.

* With significant difference between Y1 and Y3 students



Discussion

Discussion

Overall perceived stress – all students (Mean = 2.0)

- Moderate
- Similar to another Hong Kong study (Mean=2.10) (Chan et al., 2009)
- > Taiwanese (Mean=1.75) (Sheu, et al., 2002)
- > Spanish (Mean=1.87) (Jimenez, et a., 2010)

	HK	Taiwan	International Standard
Nurse: patient	(DAY) 1:12-13 (NIGHT) 1:22-24	(DAY) 1:8-10 (NIGHT) 1:15-16	1:4-6

- The nurse to patient ratio is higher in HK, which might associate with higher perceived stress in the local nursing students (Li, 2011; Liu, 2009)

The two commonest stressors (all students):

Stress from lack of professional knowledge and skills (Rank #1)

- Did not read or prepare before their clinical practicum
- Timetabled to attend lectures in early part of the week, followed by clinical experience for the rest of the week
- Incompletion of the whole course before clinical practice

Stress from taking care of patients (Rank #2)

- Inexperienced in taking care of patients with multiple health problems and handling unexpected circumstances in the clinical setting
- Afraid of making mistakes and lack confidence in taking care of patients
- Interactions are brief and task-oriented

(Admi, 1997; Ashmore & Banks, 2002; Kleehammer, Hart & Keck, 1990; Mahat, 1998; Oermann, 1998; Pagana, 1988; Sheu et al, 2002)

Overall perceived stress:

Year 3 (Mean=2.26) > Year 1 (Mean=1.86) ($p < 0.001$)

Possible reasons:

- Professional demands on Year 3 are greater because they are perceived by peers to be more knowledgeable and skillful
 - ✓ may therefore be given greater responsibility than they feel able to cope with
- Students may expect more from themselves to be on the verge of qualification
- New challenges faced by Year 3 (soon to be a RN)

(Lindop, 1999)

Other studies

- Some studies: Stress experienced by nursing students in clinical practice increased as they progressed through the programme (Oermann, 1998)

Whereas

- Some studies: Junior nursing students showed a higher anxiety score than senior students (Kleehammer et al., 1990)

No consistent studies show whether:

Junior or senior students have higher levels of stress in clinical practice when the two groups are compared.

Other significant stressors: stress from the environment (Rank # 4) and stress from teachers and nursing staff (Rank # 5) between year 1 and year 3 ($p < 0.001$), in which year 3 > year 1 for both stressors

o Possible Reasons:

- Year 1 have clinical mentors' guidance, whereas year 3 do not
- Year 1's placement locates in sub-acute wards
- Year 3 students are usually expected to be independent in the ward,
 - ✓ to deliver more direct nursing care
 - ✓ as they progress toward graduation
 - ✓ *"They start to have a greater need for direct nursing application and for help in synthesizing patient data from the teacher"* (Kanitsaki & Sellick, cited in Li, 1997, p.1258)

**Overall perceived stress level:
Year 3 > Year 1**

**Diarrhoea, stomach, get cold, feel blue
and depressed are common symptoms
of stress**

- 1. Year 3 students have more
stomachache and diarrhea**
- 2. Year 3 students have cold more often**
- 3. Year 3 students often feel blue and
depressed**

- **Specific social behavioral response: Year 1 students “do not feel needed or valued”**

There may be limited knowledge, skills and experience in Year 1 students. They may not be helpful in the ward as they are in the novice learning stage.

Transference is the most frequently used and the most perceived effective coping strategies:

- Students do not know or know little about other kinds of coping strategies (Chan et al., 2009)
- It is the most approachable and convenient (Chan et al., 2009)
- Nursing student tends to use emotion-oriented coping because of their background. In Chinese culture, people would keep calm when they encounter difficulties (Evans & Kelly, 2004)
- Emotion-oriented coping may lead to higher stress level, e.g. transference doesn't eliminate the actual problem (Watson et al., 2007)
- And transference is effective for a short time (Chan et al., 2009):
 - ✓ Students have short clinical placement and they don't have to solve the problem completely

Avoidance is the least frequently used and least perceived effective coping strategy:

- It is consistent with a previous study (Luo & Wang, 2008)
- Coping by avoidance is non-constructive and it doesn't eliminate the underlying problem
- University students are well educated. Most of them would regulate their emotions and “take the responsibility to solve the problem”



**Conclusion,
Limitations &
Recommendations**

Conclusions

- The overall perceived stress in Year 3 is higher than Year 1 significantly.
- There is no significant difference between Year 1 and Year 3 students concerning physio-psycho-social response status and coping behaviours.
- Transference is the most commonly used and most perceived effective coping strategy.
- Avoidance is the least commonly used and least perceived effective coping strategy.
- Year 1 students perceived all coping categories more effective than Year 3.

- 1. Enhance students' learning of professional knowledge and skills in the clinical laboratories, e.g. use of advanced simulation**
- 2. Maintain a reflective journal to identify students' problems and evaluate their clinical performance**
- 3. Create a supportive climate for the students,**
 - 3.1 Better rapport can be developed between clinical staff and nursing students practicing in their units;
 - 3.2 Provide clearer orientation to students about the ward environment;
 - 3.3 Clarify their concerns during the practice;
 - 3.4 Provide guidance for those who are inexperienced in taking care of patients with multiple health problems; and
 - 3.5 Give more constructive feedback on their performance.
- 4. Develop a qualitative design to further investigate the perceived stress and experienced between junior and senior students**

(Chan & Ip, 2006; Oermann & Lukomski, 2001)

5. Provide stress management and coping skills workshops to students
 - 5.1 Although the effectiveness varies with different people, students can be taught about the different kinds of coping strategies
 - 5.2 Especially the constructive coping strategies such as problem solving can be promoted as they can eliminate the underlying problem
 - 5.3 Students can adapt the coping strategies which are the most effective for them

Limitations

- The response rate for year 3 students was relatively low compared with year 1 due to online recruitment.
- Sample size is not big enough.
- Sample was only taken from Hong Kong Polytechnic University. It may not represent all nursing students in Hong Kong.
- The male to female ratio in the sample is around 1: 2.8, which is imbalanced.
- Cross-sectional design of this study cannot assure that the stress is mainly from placement.
- CBI may not include all coping strategies.
- PPSRS may not include all symptoms that may appear in nursing students.



*Thank You and Any
Comments are Welcome*



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