



Our journey: Psychological Insulin Resistance: an Integrative Review

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SAMSUNG



Road to Our Topic

Group 5 Meeting	
4 Jan 2017	Scary message vs Message with hope
24 Jan 2017 with Dr. Tsui IS	Personality and Self-management -Diet, Drug, Stress
16 Feb 2018	Self-management - Middle-age, Female, Shift duty
11 May 2017	Decided on PIR: an integrative review
8 Nov 2017	
14 Sept 2017	
10 Jan 2018	
28 June 2018	
14 July 2018	
11 Aug 2018 with Prof. So	Revamp methodology
3 Oct 2018 with Dr. Tiu	

Introduction / Background

T2DM

- A progressive disease
- May require insulin eventually

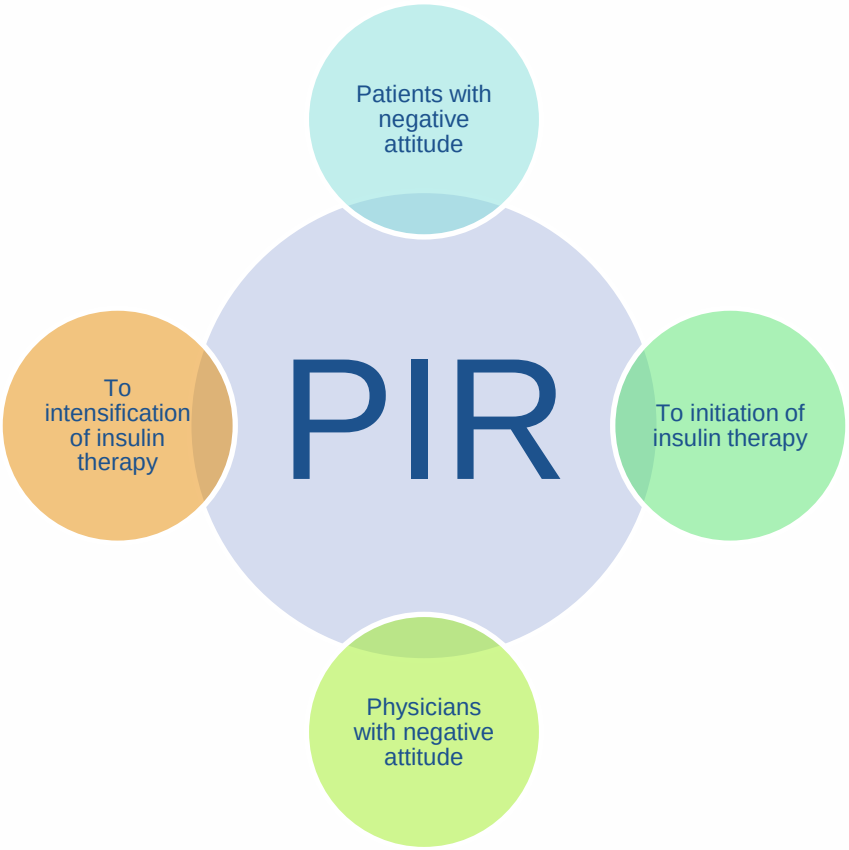
The delay of insulin use

- Prolong the period of hyperglycaemia
- Increase the risk of developing chronic complications

PIR

- Reluctance to start or intensify insulin termed psychological insulin resistance

Different PIR Definition



Examples

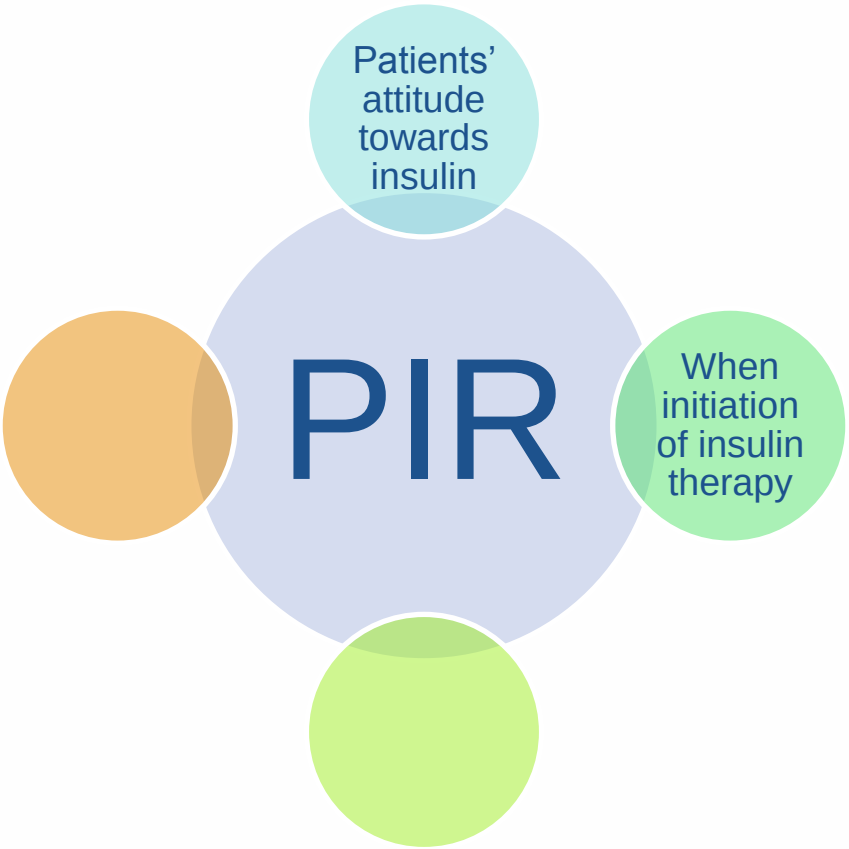
- PIR refers to psychological barriers to initiation and persistence with insulin therapy in patients as well as in health care providers (Gherman, 2011)
- PIR may be one of the major etiologies explaining both the reluctance of patients to initiate and to intensify treatment (Brod, 2009)
- PIR is denoted by negative appraisal of insulin (Woudenberg, 2011)

German A, Veresiu IA, Sassu RA, Schnur JB, Scheckner BL, Montgomery GH. (2011) Psychological insulin resistance a critical review of the literature. Pract Diab Int. Vol 28 No.3, p125-128.

Brod M, Kongso JH, Lessard S, Christensen TL. (2009) Psychological insulin resistance patient beliefs and implications for diabetes management. Qual Life Res. p1823-32.

Woudenberg YJC, Lucas C, Latour C, Scholte WJM. (2011) Acceptance of insulin therapy a long shot Psychological insulin resistance in primary care. Diabetic Medicine 29, p796-802.

PIR Definition



- Psychological insulin resistance (PIR) in this review refers to the phenomenon of reluctance towards initiation of insulin therapy in T2DM patients.

Aim

- This review aims to evaluate current evidence with regard to psychological insulin resistance among T2DM patients.
- **Review question:** How prevalent is PIR, and what are the associated factors?

Search Method and Result

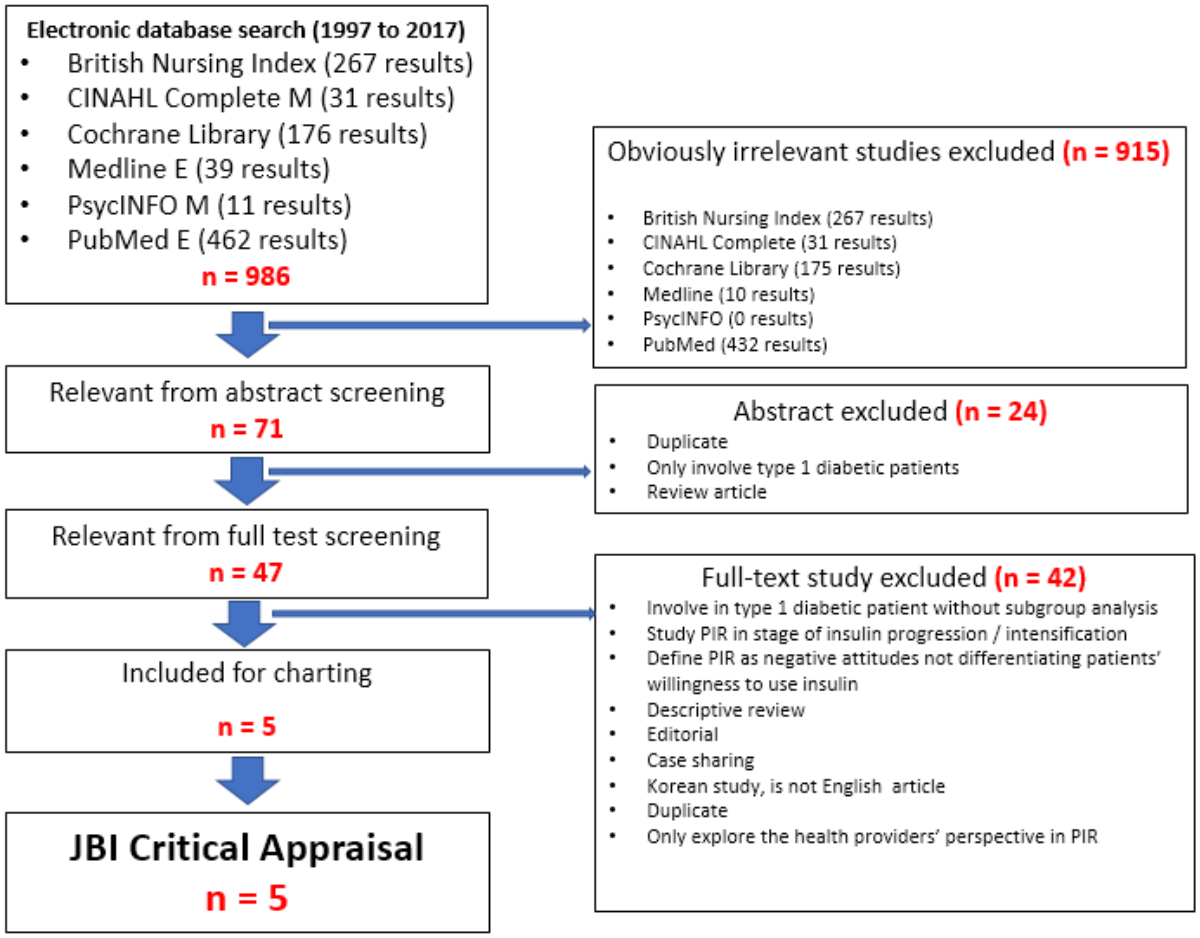


Fig 1: Flow diagram of articles selected for review



Findings (I)
Characteristics of Studies

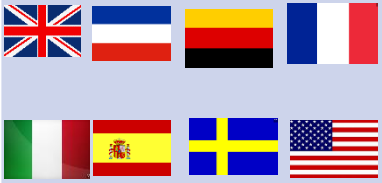
Study	Nation	N	Male	Method & Setting	Mean age (years)	Duration of DM	Mean HbA1C
Odawara 2016		130	33% vs 28%*	Questionnaire interview Multi-center	60.8±11.3 vs 11.2±10.5*	12.9±8.2 vs 11.2±9.2*	9.9%±1.7% vs 9.3%±1.4%*
Petrak 2013		532	66.9%	Questionnaire interview Primary care setting	56.5±8.77	6.65±6.11	8.5%±1.5%
Machinani 2013	94% Latino & African American	136	43%	Questionnaire interview A diabetes clinic	51.1±10.3	6.9±6.9	--
Woundenberg 2012	66%Dutch	101	54%	Questionnaire interview	61±10.9	3 3 vs 5*	6.6% (median)
Polonsky 2011		1400	59.3%	Online survey	51.6±12.4	6.1±7	--
		Total 2299					

*willing vs unwilling to start insulin

All Cross-Sectional Studies

Machinani, S., Bazargan-Jejazi, S. and Hsia, S.H. (2013) Psychological insulin resistance among low-income, U.S. racial minority patients with Type 2 diabetes. Primary Care Diabetes. 7:p51-55.
Polonsky, W.H., Hajos, T.R.S., Dain, M-P., Snoek, F.J. (2011) Are patients with Type 2 diabetes reluctant to start insulin therapy? An examination of the scope and underpinnings of psychological insulin resistance in a large, international population. Current Medical Research & Opinion. 27:6, p1169-74.
Petrak, F., Herpertz S., Stridde, E. and Pfutzner, A. (2013) Psychological Insulin resistance in Type 2 diabetes patients regarding oral anti-diabetes treatment, subcutaneous insulin injections, or inhaled insulin. Diabetes Technology. 156:8 p702-710.
Odawara, M., Ishii, H., Tajima, N. and Kwamoto, Y. (2016) Impact of patient attitudes and beliefs to insulin therapy upon initiation, and their attitudinal changes after initiation: the DAWN Japan study. Current Medical Research and Opinion. 32:4 p681-686.
Woudenberg, Y.J.C., Lucas, C., Latour, C. and Scholte op Reimer W.J.M. (2012) Acceptance of insulin therapy: a long shot? Psychological insulin resistance in primary care. Diabetic Medicine 29, p796-802.

Findings (I)
The Five Instruments & Seven Domains

		Instrument	No. of item	Domain
Odawara 2016		Survey Questionnaire to Assess Patients' Attitudes and Beliefs toward Insulin Therapy in the DAWN study (DAWNQ)	21	1. Fear of needles and pain 2. Concern about physical consequences of insulin therapy 3. Concern about social consequences of insulin therapy 4. Concern about the permanence of insulin use 5. Positive outcome beliefs 6. Expected hardship 7. Self-blame
Petrak 2013		Barriers to Insulin Treatment Questionnaire (BIT)	14	
Machinani 2013		Survey for People Who Do Not Take Insulin (SPI)	9	
Woundenberg 2012		Insulin Treatment Appraisal Scale (ITAS)	20	
Polonsky 2011		Survey for Willingness, Beliefs about Insulin and Diabetes-related Emotional Distress (SWBIE)	6	
			Total 70	



Findings (I)
The Five Instruments & Seven Domains

PIR factors measured by the 5 papers at a glance

PIR Factors	BIT	ITAS	DAWNQ	SPI	SWBIE
(1) Fear (scared) of needle					
Fear of injection (just scared of injecting / self-injection)	Q2	Q6	Q1		Q5
Fear of pain during regular blood glucose checks	Q3				
Insulin injection is painful, fear	Q1	Q14	Q3	Q5	
Fear of needle					
Fear (or worry) of bad consequences or implications of injection (real or perceived)					
(2) Physical					
Taking insulin implies my health will deteriorate (ITAS)		Q12			
Taking insulin means my diabetes will become a more serious disease (SPI)				Q2	
Feeling that the disease is getting worse (Polonsky)					Q6
Fear of insulin causing complication (e.g. blindness)				Q1	
Taking insulin implies my diabetes has worsened		Q2			
Fear of hypoglycemia		Q7	Q16	Q6	
Fear of insulin overdose (hypoglycemia) and its unpleasant accompanying symptoms	Q13				
Fear of hypoglycemia and possible permanent damage to health	Q14				
Fear of limit daily life & activities			Q20		
Fear of side effects			Q21		
Fear weight gain		Q9			
Fear expected harm					
(3) Social					
Fear stigmatization			Q10&11		
Don't want others to know I have diabetes					
Don't want to be different from others					
Injecting insulin in is embarrassing		Q13			
Injecting insulin in public is embarrassing to me	Q10		Q12		
My friendships may suffer			Q13		
My family will be worried			Q19		
Fear drug addict (being regarded as)					
Fear of being regarded as a sicker person		Q4			
When people inject insulin, it makes them feel like drug addicts	Q12				
Taking insulin causes family and friends to be more concerned about me		Q18			
(4) Fear of permanence use					
Taking insulin makes me more dependent on my doctor		Q20			
Regular insulin treatment causes feelings of dependence	Q11				
Fear of permanence in insulin use (life-long, never ends)			Q5	Q9	
(5) Positive insulin outcome expectation					
Insulin works better than pills	Q4				
Insulin makes people feeling better (BIT)	Q5				Q1
Insulin improves health		Q8			
Insulin improves my energy level		Q19			
Insulin improves and maintains glucose control		Q17	Q6		Q2
Insulin promotes good physical condition			Q7		
Insulin prevents complications	Q6	Q3	Q8		
Insulin is useful based on others recommendation (physicians and people around			Q9		
Insulin is a logical next step in treatment					Q3
(6) Expected hardship / sense of control					
Expected life hardship (life becoming more restrictive, less feasible / flexible life, less enjoyable life)		Q5		Q3	
Expected hardship (have to give up enjoyable activities)		Q11			
Taking insulin makes it more difficult to fulfill my responsibilities		Q16			
Expected hardship (it takes up more time and energy to manage insulin therapy)		Q10			
I don't have enough time for regular doses of insulin	Q7				
I can't pay as close attention to my diet as insulin treatment requires	Q8				
I can't organize my day as carefully as insulin treatment requires	Q9				
Exp hardship (injection is difficult)			Q4		
Expected low self-efficacy to manage insulin therapy				Q7	
It is difficult to inject the right dose and at right time		Q15			
Exp hardship: just don't want to be bothered with doing injection			Q2		
Exp low sense of control					
My pancreas will stop functioning if I use insulin. I want to discontinue insulin if possible			Q18		
(7) Self-blame / personal failure					
Self-blame (feeling regretful, including a sense of personal failure and feeling I am not doing good enough)		Q1	Q15	Q8	
Using insulin means my disease is worsening			Q14		
Feeling of personal failure					Q4
Lack of fairness for me to take insulin				Q4	
Don't understand why insulin for me			Q17		

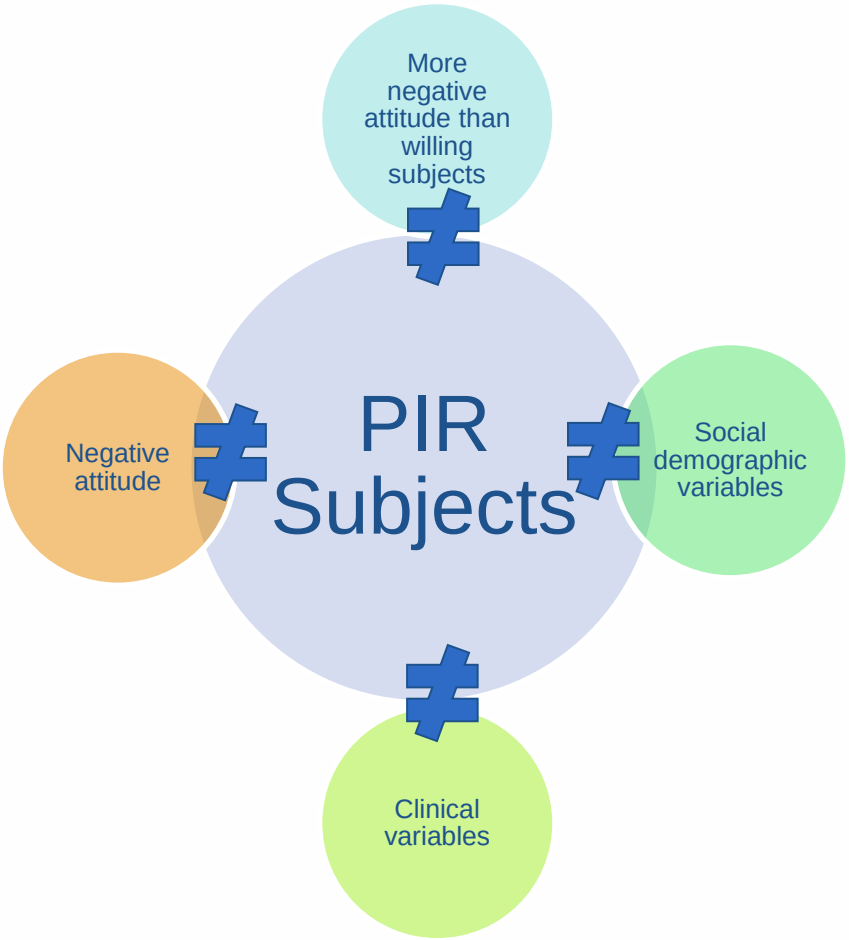
Findings (I)
The Five Instruments & Seven Domains

		Domains
Odawara 2016		1. Fear of needles and pain 2. Concern about physical consequences of insulin therapy 3. Concern about social consequences of insulin therapy 4. Concern about the permanence of insulin use 5. Positive outcome beliefs 6. Expected hardship 7. Self-blame
Petrak 2013		
Machinani 2013		
Woundenberg 2012		
Polonsky 2011		

Findings (II) Prevalence of PIR

		Prevalence of PIR
Odawara 2016		43% (N=56)
Petrak 2013		82% (N=436)
Machinani 2013		48% (N=57)
Woundenberg 2012		39%(N=39)
Polonsky 2011		17.2% (N=241) 34.7% ambivalent (N=486)

Findings (III)
Demographic and Clinical Variables Associated with PIR



- Both willing and PIR subjects embraced negative attitudes towards insulin use
- Not conclusive whether PIR subjects had more negative attitudes than willing subjects.
- Socio-demographic variables and clinical variables were not associated with PIR
- Not conclusive whether PIR was associated with negative attitudes



Findings (IV) Common PIR Factors

	Fear of needles & pain	Concern about physical consequences	Concern about social consequences	Concern about the permanence of insulin use	Positive outcome beliefs	Expected hardship	Self-blame
		such as feeling stigmatized and embarrassed, exposing the diagnosis of diabetes and dependence on others	such as feeling stigmatized and embarrassed, exposing the diagnosis of diabetes and dependence on others		such as insulin can improve glucose control and prevent complications, promote good physical condition and insulin is useful	such as restrictive and inflexible life, fear of not being able to cope with the demands of insulin therapy and finding it difficult to manage	such as taking insulin means I have failed to manage my diabetes
	√	√	√	√	√	√	
	√	√	√		--	√	--
	√	√	√	√	--	√	√
	√	√	√		√	√	
	√	√	√				



Findings (IV) Factors Predict PIR

	Fear of needles & pain	Concern about the permanence of insulin use	Positive outcome beliefs (predict to accept insulin therapy)	Expected hardship	Self-blame
Odawara 2016	√	√	√ - insulin can improve glucose control - Insulin can prevent complications - promote good physical condition - insulin is useful as physician recommends	√ I don't want to be bothered with doing injection	
Machinani 2013			√ insulin can improve glucose control and physical health	√ - taking insulin poses difficulty to fulfill responsibilities - fear of the difficulty of giving the right dose at night time	√ taking insulin means I have failed to manage my diabetes with diet and tablets

Conclusion

- PIR is a common problem in most countries.
- Not able to conclude which factors predict willingness or PIR from this review.
- A multitude of factors might influence patients' acceptance of insulin therapy, and these might differ among different patient populations.

Limitations

- Lack of one uniform validated instrument to measure components of PIR
- The 5 studies are using 5 different instruments to investigate PIR
- 2 out of the 5 instruments were using items without any stringent validation
- 3 out of the 5 studies (except Petrak et al 2013 & Odawara et al 2016) included subjects regardless of their glycemic control are necessity of insulin therapy

Reflection

EBP has its moments, its ups and downs;
moments with smiles and moments with frowns;
good times and bad times we go through it all;
but we can’t hide behind hollow bricks walls;
strive for evidence is the spirit after all.







thankyou