The International Journal of Indian Psychology
ISSN 2348-5396 (Online) | ISSN: 2349-3429 (Print)
Volume 13, Issue 3, July- September, 2025
DIP: 18.01.188.20251303, DOI: 10.25215/1303.188
https://www.ijip.in

Research Paper

The Effect of Psychological Distress on Pain among Young Adults

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ABSTRACT

Psychological Distress and Pain are the two most common phenomena that are experienced among individuals from different walks of life. Herein is the attempt that has been made to understand the relationship between Psychological Distress and Pain. Psychological Distress encompasses the experiences and symptoms of a person's internal life that are commonly held to be troubling, confusing and out of the ordinary. Psychological Distress has the potential to change a person's behaviour, negatively affect emotions and can also affect their relationships with people around them. Pain is an unpleasant sensory and emotional experience that is associated with actual or potential tissue damage. Or can be described in terms of such damage. This study has been designed with the assumption that individuals can feel the increased intensity of pain if they are emotionally distressed. The aim of the study was to understand the effect of Psychological Distress on Pain. In the study, data was collected from a sample of 80 participants. Using two different Scales that measure Psychological Distress and Pain. After the data was collected, results from each variable were calculated separately using the scale's respective manuals. After that, the scores were calculated using different statistical analysis tools, i.e., Pearson Correlation Coefficient. After the analysis of the results, it was found that there is a significant relationship between Psychological Distress and Pain. The variables had a positive correlation and the hypothesis formed was accepted. Through this study, It was found that there was a significant relationship between psychological distress and pain. Also, it was observed that there is a strong positive correlation between psychological distress and pain. This indicates that psychological distress increases the pain intensity to a great degree. This study concludes that there is a strong positive correlation between psychological distress and pain.

Keywords: *Psychological distress, Pain, Rumination, Magnification, Helplessness*

Psychological distress

It is often referred to as mental distress, and is defined as "any range of symptoms and experiences related to a person's internal life; feelings of being troubled, confused, or out of the ordinary." While everyone experiences an occasional lack of energy or focus and even feels troubled from time to time, psychological distress often has a more profound effect on an individual. In fact, psychological distress can accompany mental illness. However, it's

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Received: June 21, 2025; Revision Received: August 12, 2025; Accepted: August 16, 2025

important to note that experiencing psychological distress does not always indicate the presence of a serious mental health issue.

Symptoms: Weight gain, Anger management issues, Obsessive thoughts or compulsions, Physical symptoms that can't be explained through medical conditions, Decreased pleasure in sexual activities, Delusions and Reckless behaviour.

Treatment and Help:

1. Exercise: The benefits of exercise are both physical and psychological. According to The Mayo Clinic, psychological benefits associated with exercise include stress reduction and improved mood due to the release of endorphins, which are also known as the body's "happy hormones."
2. Develop a pattern of activity balanced with adequate sleep: Sleep deprivation contributes to anxiety and mental distress. A Harvard Health Publishing article stated that the overlap between sleep disorders and various psychiatric problems is so great that researchers have long suspected both types of issues may share common biological causes. While exercise and activity are important, it's just as important to balance activity with sleep. Good sleep gives your body a chance to recover from daily activities and stress, so you can recharge. During sleep, your body makes repairs to the heart and blood vessels, regulates hormones, keeps your immune system functioning optimally, and overall supports healthy growth and development.
3. Healthy diet: Even in our health-conscious society, many people do not realize the effects that diet can have on mood. In fact, lack of proper nutrition can affect mood and energy. For example, there are nutrients in certain foods and diets that have been linked to improvement regarding symptoms of depression. When stress levels are already an issue, the effect of poor nutrition can compound the distress.

THEORETICAL PERSPECTIVES OF PSYCHOLOGICAL DISTRESS

Medical model:

In the world, the medical model is the preeminent or dominant way of thinking about pathology (Novello, 1999; Kaplan & Sadock, 1998). According to this model, psychological distress is treated as a disease on par with other physical illnesses. uses a definition of psychological distress that is similar to that of medical professionals. In other words, psychological distress is a neurological condition that necessitates care and treatment because it results in disordered thinking and behaviour (Carson, Butcher, & Mineka, 1996).

Interpersonal Theory:

According to interpersonal theories, psychological problems are a result of dysfunctional interactional patterns (Carson et al., 1996). They stress the fact that we are social beings and that a lot of who we are is a result of the relationships we have with other people. Maladaptive behavior in relationships, which is brought on by unsatisfactory relationships in the past or present, is referred to as psychological distress. When different patterns of interpersonal relationships are examined for the distressed person, psychological distress is discovered. This viewpoint claims that interpersonal therapy, which focuses on resolving relationship-related issues and aiding individuals in achieving more fulfilling relationships by learning new interpersonal skills, can reduce distress.

Psychodynamic Theory:

Traditional psychoanalytic models take an intrapsychic stance when examining pathology (psychological distress). They place a strong emphasis on how defence mechanisms and

unconscious processes play a part in distinguishing between normal and abnormal behaviour. Early experiences play a crucial role in later personality development; in other words, they help people understand that symptoms in the present are an extension of conflicts from the past (Box, 1998; St.Clair, 1996). As a result, psychological distress can be defined as a person's attempt to deal with current challenges by resorting to childhood coping mechanisms that may seem inappropriate and maladaptive in light of the current circumstances.

Cognitive theory:

Negatively biased cognition is a key process in psychological distress, according to the cognitive model (Barlow & Durand 1999). Distressed patients frequently have a pessimistic outlook on the future, their surroundings, and themselves (Weinrach, 1988). They believe that they are unlovable, unworthy, and lacking in all respects. People's excessive affect and dysfunctional behavior, according to cognitive theorists, are caused by exaggerated or inappropriate ways of interpreting their experiences. The core of the model is that emotional problems start when our perception of events becomes overly dramatic in comparison to the evidence, and that this way of viewing things tends to negatively affect our emotions and behavior in a vicious cycle. Nothing can be gained by stating that our contemporary viewpoints are a little bit more advanced than those of our ancestors. However, it could be argued that the majority of explanatory models, like the ones mentioned above, offer a distinctive viewpoint that can help us understand the phenomenon of psychological distress more fully.

Pain

- Pain is a general term that describes uncomfortable sensations in the body. It stems from the activation of the nervous system.
- Pain can range from annoying to debilitating. It may feel like a sharp stab or dull ache. It may also be described as throbbing, pinching, stinging, burning, or sore.
- Pain may be consistent, it may start and stop frequently, or it may occur only under some conditions. It may be acute, developing suddenly and lasting for a short period of time. Or it may be chronic, with ongoing sensations that last or return repeatedly over several months or years.
- Pain may be localized, affecting a specific part of your body. Or it may be generalized, such as the overall body aches associated with the flu.
- People respond to pain differently. Some people have a high tolerance for pain, while others have a low tolerance. Pain is highly subjective.
- Pain lets us know when something is wrong and gives us hints about the cause. Some pain is easy to diagnose and can be managed at home. Other types of pain are signs of serious health conditions that require medical attention to treat.

Types of Pain:

1. **Acute pain** develops over a short period of time. It tends to occur suddenly, often as a result of a known injury, illness, or medical procedure.
    - Acute pain tends to be sharp, rather than dull. It usually goes away within a few days, weeks, or months, after the cause has been treated or resolved.
    - Almost everyone experiences acute pain at some point in their lifetime.
2. **Chronic pain** is pain that lasts for over three months. The pain can be there all the time, or it may come and go. It can happen anywhere in your body.

- Chronic pain can interfere with your daily activities, such as working, having a social life and taking care of yourself or others. It can lead to depression, anxiety and trouble sleeping, which can make your pain worse. This response creates a cycle that's difficult to break.

3. **Nociceptive pain** is caused by tissue damage. For example, it may result from injuries such as cuts, burns, bruises, or fractures. It may also result from certain health conditions that cause tissue inflammation and damage, such as arthritis, osteoporosis, or inflammatory bowel disease (IBD).
    - When nociceptive pain develops in your skin, muscles, ligaments, tendons, joints, or bones, it's known as somatic pain. When it develops in your internal organs, it's known as visceral pain.
    - Nociceptive pain may be acute or chronic, depending on the underlying cause. It may feel achy, throbbing, or sharp.
    - Nociceptive pain affects almost everyone at some point in their lifetime.
4. **Neuropathic pain** results from nerve damage, which may be caused by a variety of injuries and illnesses. For example, you may experience neuropathic pain if one of the discs in your spine slips out of place and puts pressure on a nerve.
    - You may also develop neuropathic pain as a result of certain illnesses, such as shingles, diabetes, multiple sclerosis, or cancer.
    - Neuropathic pain may feel like a stabbing, shooting, burning, or prickling sensation. You may also find that you're hypersensitive to touch, movement, or hot and cold temperatures.
5. **Functional pain** is pain that's caused by no obvious injury or damage to your body. It tends to be chronic, although acute functional pain may also develop.

THEORIES OF PAIN

Specificity theory of pain:

The Specificity Theory refers to the presence of dedicated pathways for each somatosensory modality. The fundamental tenet of the Specificity Theory is that each modality has a specific receptor and associated sensory fibre (primary afferent) finely tuned to detect one precise stimulus.

For instance, the model proposes that non-noxious mechanical stimuli are encoded by low-threshold mechanoreceptors, which are associated with dedicated primary afferents that project to "mechanoreceptive" second-order neurons in the spinal cord or brainstem (depending on the source of the input). These second-order neurons then relay the signals to higher mechanoreceptive areas of the brain.

Similarly, noxious stimuli would activate a nociceptor, which would transmit the information to higher "pain" centres through a pain fibre.

These concepts have been emerging over several millennia but were experimentally validated and formally articulated as a theory in the 19th century by physiologists in Western Europe.

The Specificity Theory holds that each sensory modality possesses a specific receptor and corresponding sensory nerve fibre (primary afferent) finely attuned to one particular type of stimulus. By this view, innocuous mechanical sensations are encoded by low-threshold mechanoreceptors, which are linked with dedicated primary afferents projecting to

"mechanoreceptive" second-order neurons in the spinal cord or brainstem (depending on the origin of the input). These second-order neurons then convey the signals to higher mechanoreceptive regions of the brain. Similarly, noxious stimuli would activate a nociceptor, which would transmit the information to higher "pain" centres through a pain fibre.

These ideas have been evolving over many centuries but were empirically substantiated and formally proposed as a theory in the 19th century by physiologists in Western Europe. (fig.1.1)

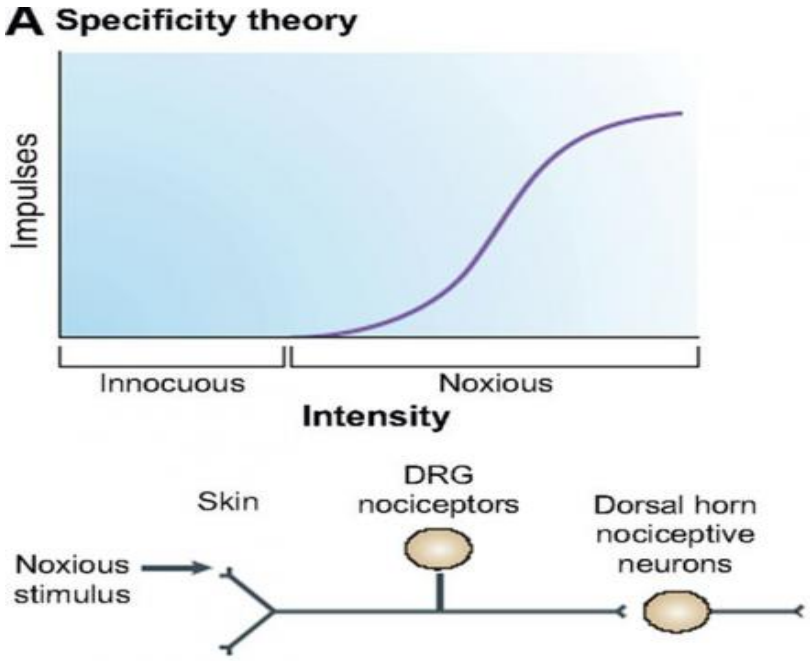

Fig.1.1

Intensity Theory of Pain:

An Intensive (or Summation) Theory of Pain (now referred to as the Intensity Theory) has been postulated at several different times throughout history. First, conceptualized in the fourth century BCE by Plato in his oeuvre Timaeus, the theory defines pain, not as a unique sensory experience but rather, as an emotion that occurs when a stimulus is stronger than usual.

Centuries later, Erasmus Darwin reiterated this concept. One hundred years after Darwin, Wilhelm Erb also suggested that pain occurred in any sensory system when sufficient intensity was reached rather than being a stimulus modality in its own right.

Arthur Goldscheider further advanced the Intensity Theory, based on an experiment showing that repeated tactile stimulation (below the threshold for tactile perception) produced pain in patients with syphilis who had degenerating dorsal columns. When this stimulus was presented 60–600 times/s, they rapidly developed unbearable pain. Naunyn reproduced these results with different stimuli, including electrical stimuli. It was concluded that summation must occur for subthreshold stimuli to become unbearably painful.

Goldscheider suggested a neurophysiological model: repeated subthreshold stimulation or suprathreshold hyper-intensive stimulation could cause pain. He suggested that increased sensory input would converge and summate in the grey matter of the spinal cord.

This theory competed with the Specificity Theory championed by von Frey. However, Sherrington's evolutionary framework for Specificity and postulated nociceptors, specialized sensory receptors responding to noxious stimuli, supported it. (fig.1.2)

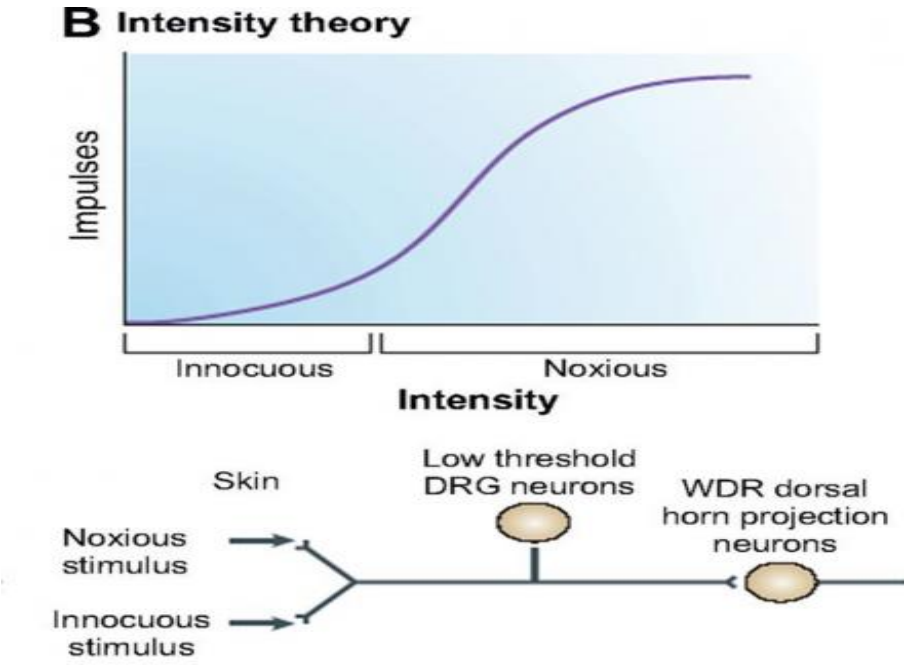

Fig.1.2

Gate Control Theory:

A theory of pain put forth by Melzack has generated a great deal of discussion and interest, and it is unquestionably a vast improvement over earlier theories of pain. His hypothesis states that the dorsal horn of the spinal cord is where pain stimulation is carried by small, slow fibres; from there, other cells carry the impulses up to the brain. T-cells are the name for these fibres. The substantial gelatinosa, a particular spinal cord region, is where the T-cells can be found. The smaller fibres that carry pain stimulation can be affected by these fibres. They can sometimes prevent stimulation from reaching the central nervous system, but they can also do the opposite in some circumstances. For instance, large fibres may prevent small fibre impulses from reaching the brain at all. In this manner, the large fibres produce a fictitious "gate" that can allow or prohibit the system from being stimulated by pain. According to the theory, a lot of tiny activated fibres can sometimes overwhelm the gate. In other words, the gate is less effective at blocking the communication of this information the higher the level of pain stimulation.

the "opening and closing" of the gate is impacted by three factors: the degree of pain fibre activity. The gate usually opens when these fibres are active. The noxious stimulation intensity determines how active the pain fibres are. The level of activity in additional peripheral fibres, or those fibres that communicate information about benign stimuli or minor irritants like touching, rubbing, or lightly scratching the skin. These are A-beta fibres, which have a large diameter. When there is noxious stimulation present, activity in A-beta

fibres has a tendency to close the gate, inhibiting the perception of pain. This would explain why massaging sore muscles gently or heating them up reduces pain. thoughts that leave the brain. The impulses sent by neurons with efferent pathways to the spinal cord in the brainstem and cortex can open or shut the gate. Some brain functions, like those involved in anxiety or excitement, may have an overall effect by opening or closing the gate to all inputs. from specific body parts. People who are hypnotized or otherwise preoccupied by competing environmental stimuli may not be aware of the pain of an injury, which may be explained by the notion that brain impulses affect the gating mechanism. theory of pain. This theory has the advantage of giving a physiological explanation for the intricate phenomenon of pain. It accomplishes this by examining the intricate organization of the nervous system, which is divided into the two main sections listed below: Central nervous system (including the brain and spinal cord) and Peripheral nervous system (nerves outside of the brain and spinal cord, such as branching nerves in the torso and extremities and nerves in the area of the lumbar spine). Fig.1.3

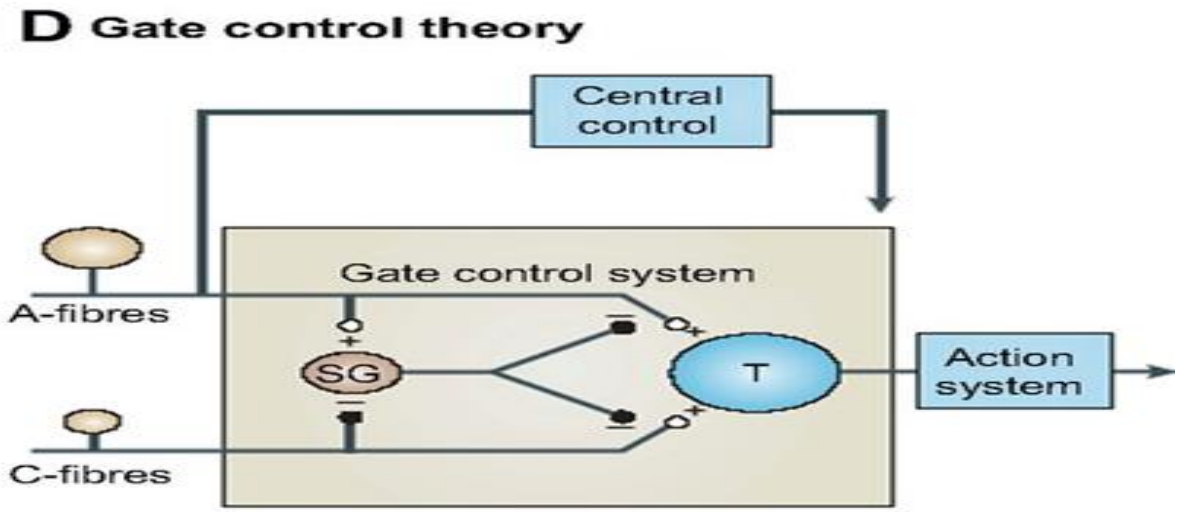

Fig.1.3

Pattern Theory of Pain:

J. P. Nafe proposed a "quantitative theory of feeling" (1929) in an effort to update theories of somaesthesis (including pain). This theory disregarded numerous observations supporting the specificity and/or intensive theories of pain, as well as findings of specialized nerve endings. According to the theory, every somaesthetic sensation is caused by a distinct pattern of neural firing, and the stimulus type and intensity are encoded in the spatial and temporal profile of peripheral nerve firing Lele et al. (1954) supported this theory and added that, aside from those innervating hair cells, all cutaneous sensory nerve fibres are identical. They cited research demonstrating that a nerve fibber's distortion would result in action potentials to cause any nerve fibre, encapsulated or not, to release action potentials. Furthermore, the perception of pain would result from intense stimulation of any of these nerve fibres (Sinclair 1955; Weddell 1955). Fig.1.4

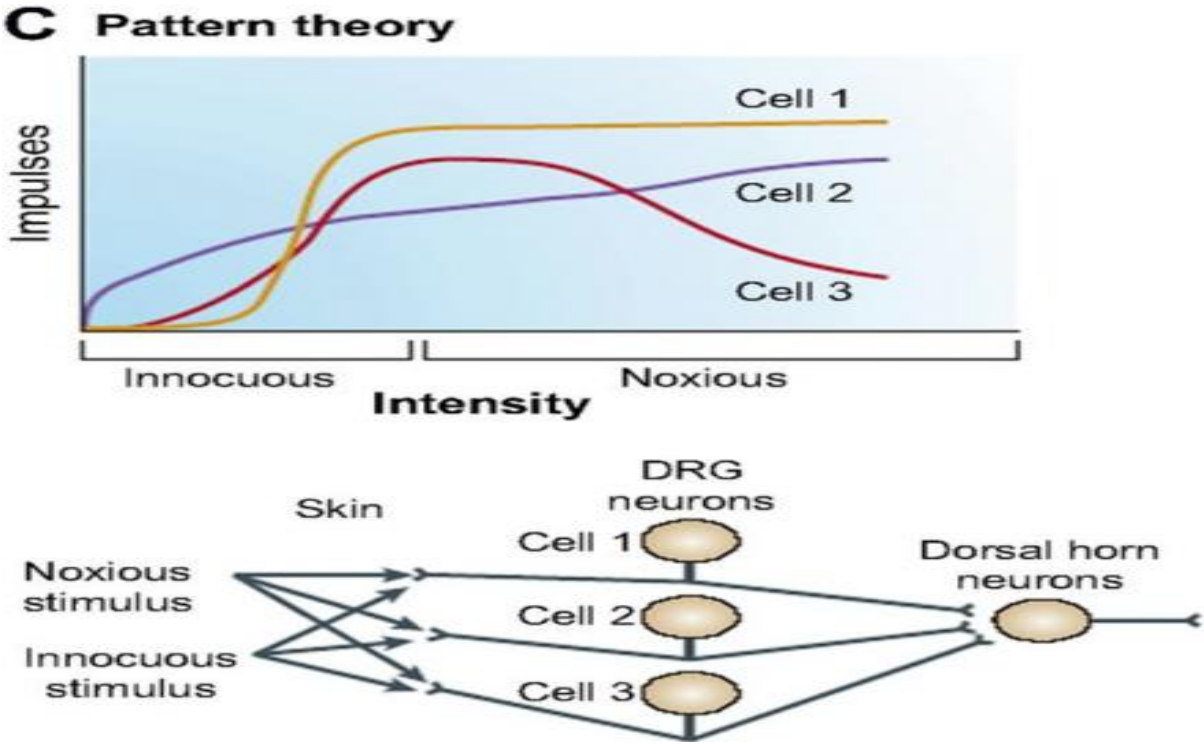

Fig.1.4

REVIEW OF LITERATURE

Arntz et al., (1991) in their study investigated four hypotheses regarding the effects of anxiety and attention on pain: anxiety increases pain, anxiety decreases pain, attention to pain increases pain, and only the combination of anxiety and attention to pain increases pain (interaction hypothesis). Anxiety levels (low vs. high) and attention levels (paying attention vs. ignoring the discomfort) were experimentally varied in a 2x2 design. 20 unpleasant shocks created electrically were delivered to the subjects. Skin conductance readings, heart rate readings, and subjective pain experiences did not indicate an anxiety-related increase in pain. The theory on the interaction between anxiety and attentiveness also received no support. Only the heart rate responses provided some evidence that anxiety lessens the impact of pain. Attention seems to be the key element. When compared to distraction, attention to the pain stimuli was associated with a higher pain impact (confirmed by all measures) and less subjective habituation.

Crombez, (2012), in his study examined how attention to pain and fearful thinking about pain are impacted by acceptance of illness in relation to chronic pain. For two weeks, 62 participants (50 women) who experienced chronic pain carried a palmtop computer. Auditory cues were given eight times daily to remind participants to answer questions regarding their experiences. According to multilevel analyses, people paid more attention to pain when it was more severe, when they thought about it more fearfully, and when they felt less happy. Accepting your illness did not affect the relationship between pain attention and pain severity. Further findings showed that scared thinking about pain increased with times of greater pain intensity, greater negative emotions, and lesser happy emotions.

(Arntz & Jong, 1993) in their research they tested that focus of attention rather than anxiety influences pain. Twenty-four spider phobics received a moderately painful electrical

stimulation in four conditions: low anxiety/attention directed towards pain; low anxiety/attention distracted from pain; high anxiety/attention directed towards pain; high anxiety/attention distracted from pain. Anxiety was induced by means of exposure to a spider. Subjective pain ratings strongly supported the hypothesis: pain was rated lower when the subject diverted attention away from than when the subject attented to the pain stimulus, regardless of level of anxiety. There was no influence of anxiety on any of the pain responses. Attentional focus rather than anxiety seemed to influence pain.

(Carlisle & Parker, 2014) in their research aimed to find, Psychological Distress and Physical Pain in Australian Coal Miners. 231 Coal miners participated in a survey of musculoskeletal pain and distress on-site during their work shifts. A total of 177 workers reported experiencing pain in at least one region of their body. The majority of the sample population was classified as having low-level distress, Higher distress score was also associated with greater absenteeism in workers who reported lower back pain. In addition, perceived sleep quality during work periods partially mediated the relationship between pain and distress. The study findings support the existence of widespread musculoskeletal pain among the coal-mining workforce, and this pain is associated with increased psychological distress

(Ryckeghem et al., 2010) in their study investigated the role of the spatial location of task-relevant stimuli in the effectiveness of distraction. Two experiments were performed in which the spatial location of visual stimuli during nociceptive input was manipulated. In a first experiment,it was tested whether the reaction to nociceptive information is slower when visual stimuli are presented at a different spatial location than at the same spatial location. In a second experiment, it was examined whether the manipulation of spatial location affects the experience of pain. Overall, results indicated that directing attention away from the pain location results in a slower response to painful stimuli and a reduction in pain. It may be concluded that the analgesic effect of distraction is at least partly the result of the spatial location of the distracting information.

(Malow, 1981) assessed the effects of induced anxiety on pain perception. Anxiety was documented by self-report verbal indices and physiological indices. Measurement procedures based on signal detection theory were employed to separate discriminability and response bias in reporting pain. The major finding of the study was that induced anxiety, as defined by the combination of physiological and verbal indices, decreases pain sensitivity and the tendency to report sensations as painful. But, the decrease was less in patients who were defined as more anxious in nature.

Wegener et al. (2011) in their study, assessed how psychological distress mediates the effect of pain on function, the current analyses characterize the relationship among pain, psychological distress, and physical function after major lower extremity trauma. Structural equation modelling techniques were utilized to analyze data from a prospective 2-year observational study of 327 patients treated at level I trauma centres. Data were gathered at three months consequtive, after injury. In the models tested, higher levels of depressive and anxious distress at the preceding time point related to lower levels of functioning and higher levels of pain at the preceding time point were related to lower levels of functioning. The combination of depressive and anxious distress plays an increasingly important role in mediating the impact of pain on physical function as the recovery from lower extremity trauma progresses from early to later stages. Both pain and psychological distress contribute to reduced function during the first year after a serious injury; however, as recovery

proceeds, the role of psychological distress in determining function increases. Longitudinal data on patients with severe leg trauma demonstrates that as recovery proceeds, psychological distress plays an increasingly important role in mediating the impact of pain on function.

(Cano et al., 2004) Their study examined whether marital functioning variables related uniquely to psychological distress and diagnoses of depressive disorder independent of pain severity and physical disability. Participants were one hundred ten chronic musculoskeletal pain patients. physical disability, pain severity, and negative spouse responses to pain were uniquely related to anxiety symptoms. Only physical disability was uniquely related to major depression. The results suggest that models of psychological distress in chronic pain patients might be enhanced by attributing greater importance to interpersonal functioning and increasing attention to anxiety.

(Anestis et al., 2022) Their study investigated MMPI-2-RF scales' ability to assess two widely examined transdiagnostic constructs, distress tolerance and pain perception, across both self-report and behavioral indicators. The sample included 115 undergraduate students who completed a valid MMPI-2-RF and multimethod measures of pain perception and distress tolerance. The results matched with prior research in areas of internalizing symptoms, psychopathy, and suicide risk factors in self-report, but not behaviorally-based, assessment. Implications of this inconsistency, the association between clinical assessment and transdiagnostic constructs, and the heterogeneity of the distress tolerance and pain perception constructs are enlightened.

(Tang & Gibson, 2005) in their study examined the interactive effects of state and trait anxiety on pain threshold and subjective pain intensity. State anxiety was manipulated in fifteen low trait anxious (LTA) individuals and seventeen high trait anxious (HTA) individuals, who rated their anxiety level and subjective pain intensity in response to noxious electrical experimental pain stimuli. A difference in pain threshold between HTA and LTA participants was not found; however, higher state anxiety led to an increase in reported pain intensity for all participants. However, HTA individuals reported significantly higher levels of anxiety and pain intensity than LTA individuals across all pain and anxiety conditions. There was no interaction between state and trait anxiety on pain perception and anxiety ratings. These findings show an additive rather than synergistic effect between state-trait anxiety and subjective pain intensity.

Rationale

The study conducted is primarily focused on measuring the cause and effect of Psychological Distress on Pain. From a personal point of view, learning from several experiences it occurred to me that if an individual is in a great deal of psychological distress the experience of pain intensity also increases. This study will help in proving the formed hypothesis or ideas in a concrete manner. This study will depict the clear relationship between Psychological Distress and Pain, in a significant and scientific manner.

Aim

To study the effect of Psychological Distress on Pain.

Objectives

- To study the level of Psychological Distress among young adults.
- To study the levels of Pain Experienced by Young adults.

- To study the Effect of Psychological Distress on Pain

Hypotheses

- H0: There will be no correlation between Psychological Distress and Pain.
- H1: There will be a significant relationship between Psychological Distress and Pain.
- H2: There will be a strong positive correlation between Psychological Distress and Pain.

METHODOLOGY

Research Design

The research design will be Correlational Research Design, Comparative in nature.
Correlational research design is a type of research methodology used to examine the relationship between two or more variables. It involves measuring the variables of interest and assessing the degree to which they are associated or correlated with each other. The primary objective of correlational research is to identify and measure the degree of association between variables. It aims to determine the strength and direction of the relationship between the variables under investigation. Correlational research involves statistical analysis to determine the extent of the relationship between variables. Common statistical techniques used include correlation coefficients (Pearson's correlation coefficient). This research design was valuable in exploring relationships between variables when it is not possible or ethical to manipulate variables in a controlled experimental setting. It allowed me to examine real-world phenomena and generate hypotheses for further investigation.

Sample

The sample size comprised 80 participants, irrespective of their gender. The age range of the participants was from 18 to 25(Young adults) belonging to urban domicile, across different socio-economic statuses and having a minimum qualification of higher secondary. The sample was chosen by Random Sampling method and data was collected through the medium of self-report questionnaires.

- **Inclusion Criteria:**
  1. Young adults between the ages of 18-25
  2. Educational qualifications of at least higher secondary.
  3. Both males and females were included in the study.

- **Exclusion Criteria:**
  1. Young children, adolescents, middle-aged and old aged people were excluded from the study.
  2. Individuals from rural areas are not included and
  3. Individuals who have not done higher secondary education were also excluded.

Variables

- Independent Variable – Psychological Distress
- Dependent Variable – Pain

Tools/Measures Used:

Table 1: Tools/Measures Used

Sr. no.	Names of Tools	Author and Year
1.	Consent Form	
2.	Pain catastrophising Scale	Dr Michael Sullivan, 1995
3.	Kessler's Psychological Distress Scale(K10)	(Kessler and Mroczek, 1992)

1. Consent Form

- Greetings! This is Aiyush Rathee a student of masters of Gautam Buddha University. I am conducting a study on the effect of psychological distress on pain, for which ill be distributing a few forms for you to fill.
- The forms will measure your psychological distress and pain based on past experience. There are no right or wrong answers. I would be grateful if you could spare a few minutes to fill these forms up.
- The data will be kept confidential and used for only research purposes. Your participation in the study is completely voluntary and you may withdraw at any given moment.

  Do you agree to take part in the study?
  - Yes
  - No

2. Pain Catastrophising Scale (PCS)

- The PCS was developed in 1995 at the University Centre for Research on Pain and Disability to facilitate research on the mechanisms by which catastrophizing impacts on pain experience. Factor analyses of the PCS have shown that catastrophizing can be viewed as a multidimensional construct comprising elements of rumination, magnification and helplessness.
- The PCS can be completed and scored in less than 5 minutes, and thus is easily amenable to inclusion within standard clinical practice. Prior knowledge of a patient's level of catastrophic thinking, in addition to other pain-related variables, enables treatment plans to be more individually tailored. The PCS is a 13-item instrument. The PCS requires a reading level of approximately Grade 6. The PCS instructions ask participants to reflect on past painful experiences, and to indicate the degree to which they experienced each of 13 thoughts or feelings when experiencing pain, on 5-point scales with the end points (0) not at all and (4) all the time
- The PCS has been shown to have adequate to excellent 6 internal consistency (coefficient alphas: total PCS = .87, rumination = .87, magnification = .66, and helplessness = .78. The PCS total score is computed by summing responses to all 13 items.

3. Kessler's Psychological Distress Scale(K-10)

- The K10 is based on 10 items that measure the psychological distress symptoms during the previous month. Respondents were asked, "During the past month, how often did you feel: 1) tired out for no good reason; 2) nervous; 3) so nervous that nothing could calm you down; 4) hopeless; 5) restless or fidgety; 6) so restless you could not sit still; 7) sad or depressed; 8) so depressed that nothing could cheer you up; 9) everything was an effort; 10) worthless." Items were rated on a five-point ordinal scale—all of the time (score 4), most of the time (score 3), some of the time (score 2), a little of the time (score 1), and none of the time (score 0). The

total K10 score for each respondent was calculated by summing all 10 items. K10 scores could range from 0 to 40, with higher scores indicating higher levels of psychological distress. The scale's internal consistency was evaluated via Cronbach's alpha. Alpha values of 0.70 to 0.80 are considered satisfactory.

Procedure

The study was conducted through the following procedure:

1. Rapport was established with the participants
2. Participants were made comfortable by answering their queries and clearing their doubts.
3. Proper consent was taken from the participants.
4. Participants were given information regarding the questionnaires and the procedure.
5. Participants were informed that there are no right or wrong answers.
6. Brief details were taken from the participants and the purpose of the study was explained clearly.
7. Data was collected by proper measures and the collected data was analysed and studied using different statistical tools.

Statistical Analysis

The statistical tools used are-

1. Descriptive Statistics

Descriptive studies and brief descriptive coefficients summarize a given data set, which can be either a representation of the entire population or a sample of the population. Descriptive statistics are broken down into measures of central tendency and measures of variability(spread). The measure of central tendency includes mean, median, and mode and the measure of variability includes standard deviation.

2. Correlation Coefficient

The degree of association is measured by a correlation coefficient, denoted by r. It is sometimes called Pearson's Correlation Coefficient after its originator and is a measure of linear association. If a curved line is needed to express the relationship, other and more complicated measures of correlation must be used.

The correlation coefficient is measured on a scale that varies from +1 through 0-1. The complete correlation between two variables is expressed by either +1 or -1. When one variable increases the other variable also increases, it is considered a positive correlation. When one decreases as the other variable increases, it is considered a negative correlation. The complete absence of correlation is denoted by 0.

Ethical Considerations

- **Legality:** It was ensured that all the rules and procedures were adhered to and no law should be broken in the process.
- **Consent:** All the tests conducted with the subjects were only done with their knowledge and permission.
- **Confidentiality:** Information concerning all the subjects was kept confidential.
- **Ethical Boundaries:** Any kind of confrontational, clarification and question were not asked or added.
- All the participants were allowed to have the free will and option of withdrawing their participation from the study at any point in time due to any personal or medical reason.

RESULTS

Results were analysed using SPSS.

Table 2-Descriptive Statistics

Grouping	N	Mean	Standard Deviation
Rumination	80	7.18	4.203
Magnification		5.81	3.779
Helplessness		8.19	5.874
Psychological Distress		26.31	8.797
Pain		21.19	12.588

The table above shows the Mean, Median, Mode and Standard Deviation of Psychological Distress and Pain respectively. The table also shows the number of participants in the study which is depicted by (n).

Table 3- Correlational between Rumination and Psychological Distress

		Rumination	Psychological Distress
Rumination	Pearson Correlation	1	.672**
	Sig. (2-tailed)		<.001
	N	80	80
Psychological Distress	Pearson Correlation	.672**	1
	Sig. (2-tailed)	<.001	
	N	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

The above table shows that there is a significant positive correlation between Rumination and Psychological Distress. When Psychological Distress increases levels of Rumination also increases.

Table 4- Correlation between Magnification and Psychological Distress

		Psychological Distress	Magnification
Psychological Distress	Pearson Correlation	1	.689**
	Sig. (2-tailed)		<.001
	N	80	80
Magnification	Pearson Correlation	.689**	1
	Sig. (2-tailed)	<.001	
	N	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

The above table shows that there is a significant positive correlation between Psychological Distress and Pain. When Psychological Distress increases levels of Magnification also increase.

Table 5- Correlation between Psychological Distress and Helplessness

		Psychological Distress	Helplessness
Psychological Distress	Pearson Correlation	1	.721**
	Sig. (2-tailed)		<.001
	N	80	80

		Psychological Distress	Helplessness
Helplessness	Pearson Correlation	.721**	1
	Sig. (2-tailed)	<.001	
	N	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

The above table shows that there is a significant positive correlation between Psychological Distress and the level of Helplessness.

The above statistical analysis shows that there is a significant relationship between Psychological Distress and Pain, thereby H1 is accepted.

Table 6- Correlational between Psychological Distress and Pain

		Psychological Distress	Pain
Psychological Distress	Pearson Correlation	1	.767**
	Sig. (2-tailed)		<.001
	N	80	80
Pain	Pearson Correlation	.767**	1
	Sig. (2-tailed)	<.001	
	N	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

The above table shows that there is a significant positive correlation between Psychological Distress and Pain, thereby, when Psychological Distress is increased the intensity of pain felt is also increased and vice versa. Therefore Hypothesis 2 is accepted.

DISCUSSION

At a certain point in time, every individual has experienced psychological distress and pain. These reactions are of many different types due to several reasons. Both psychological distress and pain cause a negative reaction in an individual's life. But, these both factors have an equally important role, as they direct an individual towards any persisting problem that may be developing psychologically and physiologically. This study aimed to focus on the relationship between psychological distress and pain and how these phenomena contribute to elevated levels of sensations and feelings. Psychological Distress encompasses the experiences and symptoms of a person's internal life that are commonly held to be troubling, confusing and out of the ordinary. Psychological Distress has the potential to change a person's behaviour, negatively affect emotions and can also affect their relationships with people around them. Pain is an unpleasant sensory and emotional experience that is associated with actual or potential tissue damage. Or can be described in terms of such damage. This study has been designed with the assumption that individuals can feel the increased intensity of pain if they are emotionally distressed.

This study mainly focuses on the correlation between these two variables and how significant their relationship is. In this study, the questionnaire used to measure psychological distress is Kessler's Psychological Distress Scale and to measure pain, Pain Catastrophising Scale is used. Kessler's psychological distress scale was developed by

Kessler and Mroczek in 1992. The Pain Catastrophising Scale was developed by Dr. Michael Sullivan in 1995. The data was collected in a sample of 80 participants and the scales were scored with the help of their manuals. After the scoring of scales, the results were found using different statistical tools and methods. When the results were interpreted it was found that psychological distress and pain had a significant positive relationship. The results showed that these variables had a strong positive correlation which explains that when psychological distress increases pain also increases and when psychological distress decreases pain also decreases. At the beginning of the study, two hypotheses were formed which assumed that psychological distress and pain will have a significant relationship and both variables will have a positive correlation. Both hypotheses were accepted. As a result after conducting this study, it is statistically proven that psychological distress has an effect on pain significantly. This study filled the research gap that earlier studies had left. A similar study done by Carlisle and Parker in 2014, which aimed to find psychological distress and pain in coal miners in Australia found that the majority of the sample population was classified as having low-level distress, Higher distress score was also associated with greater absenteeism in workers who reported lower back pain. Another Similar study done by Wegener in 2011, assessed how psychological distress mediates the effect of pain on function, the current analyses characterize the relationship among pain, psychological distress, and physical function after major lower extremity. It was found that the combination of depressive and anxious distress plays an increasingly important role in mediating the impact of pain on physical function as the recovery from lower extremity trauma progresses from early to later stages. Both pain and psychological distress contribute to reduced function during the first year after a serious injury.

The findings of this study support the claim that Psychological Distress has a strong positive and significant relationship with Pain.

CONCLUSION

Psychological Distress encompasses the experiences and symptoms of a person's life that has the potential to change a person's behaviour, negatively affect emotions and can also affect their relationships with people around them. Pain is an unpleasant sensory and emotional experience that is associated with actual or potential tissue damage. The study was conducted to see the effect of Psychological distress on pain. It was concluded in the study that there is a significant relationship between psychological distress and pain. The Pearson's Correlation coefficient value was .767** indicating a strong positive correlation between psychological distress and pain, indicating when psychological distress increases an individual's intensity of pain also increases. An individual with a lower level of psychological distress is more likely to overcome intense pain. Whereas a distressed individual may feel a high amount of pain, no matter the actual intensity of pain. Although it is important to note individual differences exist in feeling pain, the presence of psychological distress acts as a catalyst.

Limitations and Suggestions

The present study has some limitations that encourage future possibilities of research in the similar area of interest. This research was conducted on the young adult population belonging to urban domicile. Although, there are several other factors that can lead to differences in feeling the intensity of pain. Some other variables can be gender, socio-economic status, and age, which can further be incorporated to enhance the findings of the current study. The measure of pain was done on the assumption of previously felt

experiences of pain instead of present experience with pain. The same study if conducted on terminally ill patients might yield startlingly different results.

Implications

The study conducted is primarily focused on measuring the cause and effect of Psychological Distress on Pain. From a personal point of view, learning from several experiences it occurred to me that if an individual is in a great deal of psychological distress the experience of pain intensity also increases. This study will help in proving the formed hypothesis or ideas in a concrete manner. This study will depict the clear relationship between Psychological Distress and Pain, in a significant and scientific manner.

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Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Rathee, A. & Nagar, A. (2025). The Effect of Psychological Distress on Pain among Young Adults. *International Journal of Indian Psychology*, *13*(3)*,* 2051-2068. DIP:18.01.188.20251303, DOI:10.25215/1303.188