Guidelines for Shared Task: Capturing Mental Health Dynamics from Social Media Timelines

Tasks Overview

The focus and idea of CLPsych 2025 go back to the shared task of CLPsych 2022, which introduced longitudinal modelling of changes in individuals' mood as reflected by content shared on social media timelines (Tsakalidis et al., 2022).

The CLPsych 2025 shared task combines longitudinal modelling in social media timelines with evidence generation (Chim et al., 2024), promoting the generation of humanly understandable rationales that support recognizing mental states as they dynamically change over time. We provide annotated evidence for adaptive and mal-adaptive self-states, and a score capturing the overall well-being presented in the post. In addition, we provide post-level summaries that capture the interplay between the adaptive and the mal-adaptive self-states occurring in the post, and timeline-level summaries providing clinical assessment and a dynamic narrative concerning the fluctuations and trajectory of mental states along the timeline.

By examining a temporally anchored series of posts, participants will infer psychological processes, well-being, and clinical indicators. The task is structured around the **MIND framework** (Atzil-Slonim, 2024), a pan-theoretical scheme that views human experience as consisting of self states that fluctuate and change over time.

The task will thus support the notion of mental health assessment as one of dynamic states rather than static labels while at the same time seeking to identify potential evidence for state recognition.

Definitions

Self-states constitute identifiable units characterized by specific combinations of **A**ffect, **B**ehavior, **C**ognition, and **D**esire/Need (ABCD; Revelle, 2007) that tend to be coactivated in a meaningful manner for limited periods of time (Lazarus & Rafaeli, 2023).

- An adaptive self-state pertains to aspects of Affect, Behaviour, and Cognition towards
 the self or others, which is conducive to the fulfillment of basic desires/needs (D), such
 as relatedness, autonomy and competence.
- A maladaptive self-state pertains to aspects of Affect, Behaviour, and Cognition towards the self or others, that hinder the fulfillment of basic desires/needs (D).

At any given moment, one self-state can be dominant while others, often complementary, remain subtler or in the background. People differ both in the kinds of self-states that tend to characterize them and in the balance between adaptive and maladaptive states in their experience. Individuals experiencing psychological distress often become stuck in a rigid maladaptive self-state, making it difficult for them to access or more fully express their

adaptive self-states. For instance, depressed individuals frequently get stuck in negative expectations of themselves and others (D), such as believing that their need for relatedness will not be met because others will reject or abandon them, or that their need for competence is unattainable because they will inevitably fail. They tend to experience emotions such as self-criticism, anger, anxiety, shame, and guilt (A), avoid social interactions, pleasurable activities, challenges, and decision-making (B), and perceive themselves and others in ways that reinforce these negative expectations (C).

Implementing this approach for long-term monitoring can empower individuals by shifting the focus from static, trait-like symptoms to the dynamic nature of their self-states. In doing so, they can more readily identify and amplify adaptive self-states while dampening maladaptive ones, promoting greater flexibility and well-being.

Tasks for CLPsych 2025

The shared task dataset comprises timelines. A *timeline* is a chronologically-ordered sequence of posts by the same individual. Each post has been annotated for ABCD aspects and adaptive or maladaptive properties of self-states.

Posts on Reddit each contains a title and body. In our dataset, they have been concatenated into a single newline-separated string in the "post" field, i.e. "{post title}\n{post body}".

The format of a raw input file (a single timeline) with *n* posts is as follows:

```
{
  "timeline_id": "<timeline_id>",
  "posts": [
  {
    "post_index": 1,
    "post_id": "<post_id>",
    "date": "<timestamp>",
    "post": "Thank you for suggestions on my hair!\nl love the outcome. My confidence has been boosted significantly! Thank you!"
    },
    ...
  {
    "post_index": n,
    "post_idex": n,
    "post_id": "<post_id>",
    "date": "<timestamp>",
    "post": "This is the title!\nThis is the post body."
    }
  }
}
```

Given a timeline, you will be asked to perform the following tasks. We introduce each task with an accompanying input and output example.

Task A - Post-level Judgements

<u>Task A.1</u> - States' evidence: Given a post, **identify evidence** of adaptive and maladaptive self-states. Each post can include either: (1) a single self-state (adaptive or maladaptive); (2) two *complementary* self-states (adaptive and maladaptive) or (3) evidence of neither an adaptive or maladaptive state. For each self-state (adaptive or maladaptive), the evidence is a set of continuous spans of text from the post.

<u>Task A.2</u> - Well-being score: Given a post, and ideally the sequence of previous posts and the extracted evidence for adaptive and maladaptive self states from Task A.1, **rate the overall well-being** presented in the post, on a scale from 1 (low well-being) to 10 (high well-being). The score is based on GAF (American Psychiatric Association, 2000), and reflects how well an individual has been doing based on three key domains: Social functioning (school, friendships), occupational functioning (work) and an individual's overall psychological functioning. The clinical cutoff score is 6, meaning that individuals scoring below 6 may be experiencing significant distress.¹

Example Input Post	Expected Predictions	
(Highlights for adaptive and maladaptive evidence spans are here for illustrative purposes only).		
Someone who can help motivate me to exercise everyday and avoid binging. I have a heart issue where i have low blood pressure (it does not rise with activity either) and high heart rate. I need to exercise everyday (light exercise like walking) in order to help build strength and energy levels. When I miss a day, it is hard for me to get out of bed the next day, so it's very important for my health. I'm not overweight, but i do binge at night sometimes and would like someone who could be a support to help me avoid that. When I eat a lot of carbs/calories at a time, it makes my heart worse it feels like. I get more dizzy and a higher heart rate. So, I need to avoid that but sometimes my apathy with depression overcome me and I'm like "fuck it" and do it anyways. So someone to talk to in those times could help. I usually start to binge around 10-11pm. If there is anyone	["Someone who can help motivate me to exercise everyday and avoid binging", "I need to exercise everyday (light exercise like walking) in order to help build strength and energy levels.", "would like someone who could be a support to help me avoid that", "If there is anyone who could assist me with motivation for my health, I would love that!", "We could encourage each other!"] Maladaptive: ["I'm not overweight, but i do binge at night sometimes", "When I eat a lot of carbs/calories at a time, it makes my heart worse it feels like. get more dizzy and a higher heart rate. So I need to avoid that but sometimes my apathy with depression overcome me and live like "feels like" and do it amounts!"	

¹ For an example, see "Wellbeing Scale Example" below.

who could assist me with motivation for my health, I would love that! We could encourage each other!

Task A.2 Well-being score: 7

<u>Task B - Post-level summary of self-state's inner dynamics:</u>

Summarize self-states for each post. Specifically, generate a summary of the interplay between adaptive and maladaptive states identified in the post. Begin by determining which self-state is dominant (adaptive/maladaptive) and describe it first. For each self-state, identify the central organizing aspect (A, B, C, or D) that drives the state and structure the summary around it. Describe how this central aspect influences the rest, emphasizing potential causal relationships between them. Then, proceed to the second self-state and follow the same approach. If the post contains only one self-state (either adaptive or maladaptive), summarize only that state (see "Example Predictions" below; note that the summary does not need to explicitly highlight A, B, C, or D, but should aim to naturally integrate these elements into the description).

Example Input Post

(Same example post as Task A).

Expected Predictions

(Highlights indicate parts of the summary related to self-state components, described in "Self-State Dimensions with Color-Coding". Highlights only serve as visual examples for this guideline; you are only asked to submit a string summary and will **NOT** be required to submit any information about which parts of the summary describe which components).

Someone who can help motivate me to exercise everyday and avoid binging. I have a heart issue where i have low blood pressure (it does not rise with activity either) and high heart rate. I need to exercise everyday (light exercise like walking) in order to help build strength and energy levels. When I miss a day, it is hard for me to get out of bed the next day, so it's very important for my health. I'm not overweight, but i do binge at night sometimes and would like someone who could be a support to help me avoid that. When I eat a lot of carbs/calories at a time, it makes my heart worse it feels like. I get more dizzy and a higher heart rate. So, I need to avoid that but sometimes my apathy with depression overcome me and I'm like "fuck it" and do it anyways. So someone to talk to in those times could help. I usually start to binge around 10-11pm. If there is anyone who could assist me with motivation for my health, I would love that! We could encourage each other!

Task

The dominant self state in this post is adaptive and is centered around the writer's desire for a codependent relationship with someone else who can help her achieve her physical fitness goals. This desire is being fueled by the cognition of others as relating. She is feeling hopeful about getting better with the help of others, and behaves in ways that help promote her self-care by planning a daily exercise routine. All of the above leads her to share her needs with others, providing evidence of a relational behavioral pattern. The other self-state is maladaptive and is characterized by the expectation that her situation will not improve, and things will not get better. This expectation nurtures a feeling of depression within the writer, which in turn allows for self-harming behaviors such as binge eating, because she perceives the situation as if she has nothing to lose.

Self-State Dimensions with Color-Coding

This table serves as a reference for understanding Task B requirements. You will <u>NOT</u> be required to submit predictions for self-state components and subcategories throughout this shared task.

	Self-State 1 (Adaptive)	Self-State 2 (Maladaptive)
Affect	Adaptive Affect	Maladaptive Affect
Behavior-Self	Adaptive BS	Maladaptive BS
Behavior-Other	Adaptive BO	Maladaptive BO
Cognition-Self	Adaptive CS	Maladaptive CS
Cognition-Other	Adaptive CO	Maladaptive CO
Desire/Expectation	Adaptive Desire	Maladaptive Expectation

Task C - Timeline-level summary of self-state's dynamics:

Summarize self-states for each timeline. Specifically, generate a summary focusing on the interplay between adaptive and maladaptive self-states along the timeline. Emphasize temporal dynamics focusing on concepts such as flexibility, rigidity, improvement, and deterioration. If applicable, describe the extent to which the dominance of the self-states changes over time and how changes in aspects (Affect, Behavior, Cognition, and Desire) contribute to these transitions (see "Expected Predictions" below).

Example Input	Expected Predictions	
(The input would be a timeline, i.e. a chronologically ordered sequence of posts).	Task C The self states in the timeline are dominantly maladaptive, sometimes with no adaptive counterpart at all. There is a slight improvement toward the middle of the timeline, where for once the adaptive voice becomes the dominant self state in a post, possibly as a result of the writer managing to perceive the other as a figure one can connect with, trust and rely on. When she loses this key element, she can no longer maintain a high prevalence of the adaptive self-state. As a result, a maladaptive self-state, characterized by severe depressive affect, regains dominance, leading to a deterioration in her condition.	

Optional Annotations Available in Training Data

Extensive additional information regarding **components of the self-states** will be made available to you in the <u>training set only</u>. Each gold evidence will be categorized as one of six dimensions (Affect [A], Behavior towards the other [B-O], Behavior towards the self [B-S],

Cognition of the other [C-O], Cognition of the self [C-S], and Desire/Expectation [D]).² Every dimension has unique subcategories that might help you understand the data better.

- It is not mandatory to use this extended information, but it might be useful.
- These extended annotations will not be available in the test set.
- You will NOT be asked to predict these components or subcategories.

Below is an example of the annotations that will be available in the train set and test set, respectively.

```
Example of Annotations in Training Set
                                                  Example of Annotations in Test Set
 "timeline_id": "3db8573df5",
                                                   "timeline_id": "3db8573df5",
 "posts": [
                                                   "posts": [
   "post_index": 1,
                                                     "post_index": 1,
   "post_id": "e383f54895",
                                                     "post_id": "e383f54895",
  "date": "16-09-2019, 02:42:12",
                                                     "date": "16-09-2019, 02:42:12",
   "post": "Thank you for suggestions on my
                                                     "post": "Thank you for suggestions on my
hair! I love the outcome. My confidence has
                                                  hair! I love the outcome. My confidence has
been boosted significantly! Thank you!",
                                                  been boosted significantly! Thank you!"
  "Post Summary": "The self state in this post
                                                    },
is centered around the writer's feeling
                                                   ...
confident. She shows self-care behavior by
                                                   ]
upgrading her looks. She likes the outcome and
herself. She attributes the change in her
confidence to advice given to her by others,
viewing them as facilitating her autonomy
needs by suggesting and teaching her what she
should do with her hair. She acts in a relating
way by expressing her gratitude.",
   "Well-being": 9,
  "evidence": {
   "adaptive-state": {},
   "maladaptive-state": {
     "A": {
     "Category": "(11) Proud",
     "highlighted_evidence": "My confidence
has been boosted significantly"
    },
     "B-0": {
     "Category": "(1) Relating behavior",
     "highlighted_evidence": "Thank you for
suggestions on my hair"
    },
    "C-S": {
     "Category": "(1) Self-acceptance and
```

² For more information, see "<u>ABCD Elements Table with Adaptive and Maladaptive Examples</u>". It demonstrates how the adaptive or maladaptive aspect of each element may be expressed in the timeline.

```
compassion",
     "highlighted_evidence": "I love the
outcome"
   }
  }
 },
],
"timeline_summary": "The self states in the
timeline alternate between adaptive and
maladaptive voices. The adaptive voice is
compassionate with the self, is behaving
toward others in a relatable way, feeling proud
or hopeful, wishing to feel related and get
better with the help of others. The maladaptive
voice is expecting others not to care, is
engaging in self-harm behaviors with high
suicide risk, feeling depressed and hopeless
and viewing the self as worthless. Sometimes
the maladaptive self state is present by itself,
but sometimes it is switching back and forth
with the adaptive self state in one segment."
```

Posts that do not present enough relevant information about the mental state of the individual will be kept in the timelines to ensure sequential data completeness. In the training set, such posts will have empty annotations. For example:

```
{
   "post_index": <post_index>,
   "post_id": "<post_id>",
   "date": "<timestamp>",
   "post": "How To Train Your Dragon | Official Trailer",
   "Post Summary": null,
   "Well-being": null,
   "evidence": {
      "adaptive-state": {},
      "maladaptive-state": {}
}
```

The <u>Further Information</u> section contains additional clinical information and a timeline-level sample.

Next Steps

Timeline

- Availability of test data (Mar 6)
- System submissions due (Mar 11)
- Results announced (Mar 12)
- System description papers due (Mar 19)
- Acceptance notification (March 23)
- Camera ready due (Mar 27)

Submission

During our evaluation time period, we will provide you with a file containing test timelines. Your task is to provide:

- For each post
 - Task A.1. Evidence of adaptive self-states, evidence of maladaptive self-states
 - o Task A.2. Well-being score
 - Task B. Summary of self-states from the current post
- For each timeline
 - o Task C. Summary of self-states from all posts in the timeline

You are expected to provide <u>JSON files</u>. You may <u>submit up to 3 files</u> for evaluation. Please name each one as:

[TEAM_NAME]_[SubmissionID].json

The keys of the json file should be the timeline and the values should be the corresponding data for that timeline. The test set will be encoded in UTF-8 and all strings in your output must also be encoded in UTF-8.

Below we provide a schema of the expected data structure.

The JSON submission contains multiple timelines, each with a unique timeline_id (str)

- Each timeline entry has two sections: timeline_level and post_level
 - timeline_level contains a summary (str)
 - post_level contains post(s), each with a unique post_id (str)
 - Every post has four fields: adaptive evidence (List[str]), maladaptive evidence (List[str]), a summary (str), and a wellbeing score (int).

```
root

- timeline_id

- timeline_level

- summary

- post_level

- post_id

- adaptive_evidence[]

- maladaptive_evidence[]

- summary

- wellbeing_score
```

For example:

```
"<timeline_id>":{
    "timeline_level":{
        "summary": "Self-state summary of current timeline."
    },
    "post_level":{
        "<post_id>":{
            "adaptive_evidence": ["span 0 from current post", "span 1 from current post"],
            "maladaptive_evidence": ["span 2 from current post"],
            "summary": "Self-state summary of current post.",
            "well-being score": 5
        },
        # data for subsequent posts in the same timeline go here
    }
},
# data for subsequent timelines in the test set go here
}
```

Along with the test data, you will receive a validation script that checks your submission file contains predictions for all expected test timelines and posts in the correct type and format.

For each submission (SubmissionID) you evaluate, we will eventually need a description of the methods you used. During the evaluation period we will provide you with a template for describing your methods.

Evaluation

Your submission will be automatically evaluated against a test set annotated by domain experts. The test set of evidence spans and summaries will not be released during the shared task.

Submissions will be evaluated on the basis of:

- 1. Semantic overlap between submitted evidence spans and expert evidence spans.
- 2. Accuracy of predicted well-being scores compared to expert-assigned scores.
- 3. Consistency with expert-written post-level summaries.
- 4. Consistency with expert-written timeline-level summaries.

The specific evaluation metrics will be announced at a later date, but are expected to align with those used in CLPsych 2024 shared task (https://aclanthology.org/2024.clpsych-1.15/).

To support teams in preparing their submissions, as soon as it is practical we will provide (a) a submission file validation script, (b) an example test input file, (c) an example system output file, along with code that uses (b-c) to compute evaluation scores. This will enable you to verify that your own system output file is formatted properly for our automatic evaluation.³

³ If our evaluation code fails to run on a results file that you submit, we will do our best to work with you to resolve the problem but we cannot promise that we will be able to accept and evaluate that submission.

Further Information

Clinical Information

ABCD Elements Table with Adaptive and Maladaptive Examples

Dimension		Sub-Categories		
ABCD Dimension and explanation		Adaptive Examples	Maladaptive Examples	
Affect	Type of emotion expressed by a person	Calm/Laid back, Emotional Pain/Grieving, Content/Happy, Vigor/Energetic, Justifiable Anger/Assertive Anger, Proud.	Anxious/Tense/Fearful, Depressed/Desperate/ Hopeless, Mania, Apathetic/Don't care/Blunted, Angry (Aggressive, Disgust, Contempt), Ashamed/Guilty.	
Behavior	Behavior of the self with the Other (BO) The person's main behavior(s) toward the other	Relating behavior, Autonomous behavior	Fight or flight behavior, Overcontrolled/controlling behavior	
	Behavior toward the Self (BS) The person's main behavior(s) toward the self	Self-care behavior	Self-harm/Neglect/ Avoidance behavior	
Cognition	Cognition of the Other (CO) The person's main perceptions of the other	Perception of the other as related, Perception of the other as facilitating autonomy needs	Perception of the other as detached or over attached, Perception of the other as blocking autonomy needs	
	Cognition of the Self (CS) The person's main self-perceptions	Self-acceptance and self-compassion	Self-criticism	
Desire	The person's main desire, need, intention, fear or expectation.	Relatedness, Autonomy and adaptive control, Competence, Self-esteem, Self-care	Expectation that relatedness need will not be met, Expectation that autonomy needs will not be met, Expectation that competence needs will not be met	

Wellbeing Scale Example (adapted from GAF, reduced to a 1-10 range)

- **10** No symptoms and superior functioning in a wide range of activities
- **9** Absent or minimal symptoms (eg., mild anxiety before an exam), good functioning in all areas, interested and involved in a wide range of activities.
- **8** If symptoms are present, they are temporary and expected reactions to psychosocial stressors (eg., difficulty concentrating after family argument). Slight impairment in social, occupational or school functioning.

- **7** Mild symptoms (eg., depressed mood and mild insomnia) or some difficulty in social, occupational, or school functioning, but generally functioning well, has some meaningful interpersonal relationships.
- **6** Moderate symptoms (eg., panic attacks) or moderate difficulty in social, occupational or school functioning.
- **5** Serious symptoms (e.g., suicidal thoughts, severe compulsions) or serious impairment in social, occupational, or school functioning (eg., no friends, inability to keep a job).
- **4** Some impairment in reality testing or communication, or major impairment in multiple areas (withdrawal from social ties, inability to work, neglecting family, severe mood/thought impairment).
- **3** A person experiences delusions or hallucinations or serious impairment in communication or judgment or is unable to function in almost all areas (eg., no job, home, or friends).
- **2** In danger of hurting self or others (eg., suicide attempts; frequently violent; manic excitement) or may fail to maintain minimal personal hygiene or significant impairment in communication (e.g., incoherent or mute)
- **1** The person is in persistent danger of severely hurting self or others or persistent inability to maintain minimal personal hygiene or has attempted a serious suicidal act with a clear expectation of death.

Input/Outputs for a Full Timeline

Below we show a complete example, taken from a real timeline from the train set (timeline_id: 3db8573df5). For illustration, in this example we will refer to posts 3 and 4 as if they comprise the full timeline. For demonstration purposes, the outputs of Task A.1 are visualized as highlighted spans - adaptive evidence and maladaptive evidence.

Input	Task	Output
Post 3: I want to self harm. I want to sleep and never wake up. I want to go away. I don't want to feel this way anymore. I don't deserve anything or anyones love and kindness I'm really sorry to anyone I have hurt with my not being understanding. I am really sorry. I'll try to sleep this off. I am truly sorry, please forgive me.	A.1 (Evidence)	(Highlighted)
	A.2 (Well-being score)	1
	B (Post-level summary)	The dominant self state in this post is maladaptive, and it centers the writer's expectation that things are so bad that they will not get better. A severe depressive affect accompanies this expectation, leading the writer to criticize herself, believing she is unworthy of relatedness, and to give up on caring for herself, showing self-neglect/harm in the form of sleeping her problems off, and considering self harm and even suicide. It sounds as if she is saying goodbye when she says she doesn't want to feel this way anymore.
Post 4: Someone who can help motivate me to exercise everyday and	A.1 (Evidence)	(Highlighted)

does not rise with activity either) and high heart rate. I need to exercise everyday (light exercise like walking) B (Pos	(Well-being score)	The dominant self state in this post is adaptive and is centered around the writer's desire for a codependent relationship with someone else who can help her achieve her physical fitness goals. This desire is being fueled by the cognition of others as relating. She is feeling hopeful about getting better with the help of others, and behaves in ways that help promote	
		her self-care by planning a daily exercise routine. All of the above leads her to share her needs with others, providing evidence of a relational behavioral pattern. The other self-state is maladaptive and is characterized by the expectation that her situation will not improve, and things will not get better. This expectation nurtures a feeling of depression within the writer, which in turn allows for self-harming behaviors such as binge eating, because she perceives the situation as if she has nothing to lose.	
Timeline "3db8573df5" of 9 posts including Post 3 and Post 4	C (Timeline-level summary)	The self states in the timeline are dominantly maladaptive, sometimes with no adaptive counterpart at all. There is a slight improvement toward the middle of the timeline, where for once the adaptive voice becomes the dominant self state in a post, possibly as a result of her managing to perceive the other as a figure to whom one can connect, trust, and rely upon. When she loses this key element, she becomes unable to maintain the dominance of the adaptive self state, resulting in the maladaptive self state characterized by severe depressive affect to take over once more, and as a result her condition deteriorates.	

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.).

Atzil-Slonim, D. (2024). Self-Other Dynamics (SOD): A transtheoretical coding manual.

Chim, J., Tsakalidis, A., Gkoumas, D., Atzil-Slonim, D., Ophir, Y., Zirikly, A., Resnik, P., & Liakata, M. (2024). Overview of the CLPsych 2024 Shared Task: Leveraging Large Language Models to Identify Evidence of Suicidality Risk in Online Posts. In *Proceedings of the 9th Workshop on Computational Linguistics and Clinical Psychology (CLPsych 2024)* (pp. 177–190). Association for Computational Linguistics.

Lazarus, G., & Rafaeli, E. (2023). Modes: Cohesive personality states and their interrelationships as organizing concepts in psychopathology. *Journal of Psychopathology and Clinical Science*, *132*(3), 238. https://doi.org/10.1037/abn0000699

Revelle, W. (2007). Experimental approaches to the study of personality. In B. Robins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology* (pp. 37-61). Guilford Press.

Tsakalidis, A., Chim, J., Bilal, I., Zirikly, A., Atzil-Slonim, D., Nanni, F., Resnik, P., Gaur, M., Roy, K., Inkster, B., Leintz, J., & Liakata, M. (2022). Overview of the CLPsych 2022 Shared Task: Capturing Moments of Change in Longitudinal User Posts. In *Proceedings of the Eighth Workshop on Computational Linguistics and Clinical Psychology* (pp. 184–198). Association for Computational Linguistics.