



# Suicide Attempt: Temporary Ultimate Dyspraxia?

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## Introduction

It is argued that suicide is a goal-directed action. As action includes motor processes, the cognitive processes were extended by the concept of embodied cognition and because the success of physical and occupational rehabilitation requires engaging in cognitive processes, it is suggested here that suicide could be understood as a problem of dyspraxia. Some of the implications of this thesis are discussed.

Suicide and suicide attempts are substantial social problems and personal tragedies [1-4]. Unlike many health problems that were recognized as illnesses, though their causes were, for a long-time, unknown, suicide went through a number of different conceptualizations, such as being considered a religious sin, a moral downfall, a legal problem and, finally, a mental health issue [5]. Once, being understood in the frame of reference of an illness, suicidal people were freed of their responsibility for their deeds and their suicidality could be addressed in a medical setting. Being a part of the mental health classifications (DSM V, ICD 10) suicidality is considered a symptom of various mental illnesses [6] with the hope that when the core illness is dealt with, suicidality would diminish. However, this assumption proved difficult to verify and several studies indicated that suicidality is often only superficially related to the underlying mental illness [7,8]. This and other issues called for reconsideration of suicidality.

Suicidality externalizes itself in a concrete specific action, that is a suicide action. When dealing with suicidality in psychotherapy and any suicide prevention encounter, it is necessary to address the intentionality of a suicidal person. Consequently, we proposed an understanding of suicide in a frame of goal-directed processes as action, project and career [9,10]. Obviously, this is not a proposition of a suicide as a rational and, in its complex motivation, fully

conscious action. Specifically, we argued that a suicide project and action could be launched by a top down or bottom up manner [11], that it is a social, joint and often relational process [12] wherein emotional processes play a big role [13]. Maintaining that suicide is not an illness but an action we did not suggest that such an action is faultless. We described the suicide processes as distorted actions and projects [14]. In particular, we specified the malfunctioning action monitoring processes in suicide [15] as relevant for an action that is directed against the evolutionary requirement of survival. Refuting the illness understanding of suicide but outlining the distortions and malfunction in suicide action does not require dealing with suicide processes outside of health promotion settings and medical facilities. Suicide is an action problem, but it is not a question of the "right" action but a question of engaging and processing a well-functioning action system. It is not a question of the "right" value, but an issue of the action processes free of distortions and malfunctions.

It is important to underline that actions, as suggested here, are understood in their systemic organization of mental and manifest, as well as social, processes [16]. Thus, the distorted cognitions specified in the cognitive approach to suicidality [17] are understood in the theory of contextual goal-directed action as action distortions. Equally, reported malfunction of pain, emotion and attention or awareness in suicide are seen as problems in action monitoring. Further, disconnects in linking of actions, projects and careers, as well as disconnect within a person with the wish to die, one that kills and one that is being killed are also thought as action problems.

Finally, the action of solving certain problems at the expense of survival is the major action problem. Thus, certain goals are pursued while other, more relevant goals are abandoned.

This understanding of action allows us to search further while exploring suicidal processes. It seems to be established that not only cognitive and emotional processes, but also motor processes build a part of the ongoing neurological unfolding of action [18-22]. The role of the prefrontal cortex in suicide has been recognized [23]. Thus, it is meaningful to speak about suicide in action terms and in terms of problems of action. Consequently, the health issues of suicide are action issues. These are more complex than just decision problems. Issues in goal-directed action were studied in neuropsychology for a long time [24,25]. While the short-term practical dealings with objects and everyday life tasks were conceptualized and systematically assessed, the more complex and long-term goal-directed processes were only mentioned in approximate terms. Apraxia as a name for the inability to execute simple actions is recognized as a lasting and serious neurological condition [26-28]. Dyspraxia implies the partial loss of the ability to co-ordinate and perform skilled, purposeful movements and gestures with normal accuracy [29]. In adulthood it is indicated by problems with planning and organization. Obviously, one cannot take the diagnosis of dyspraxia as it is and apply it to a suicide action. We found only one paper in PsyInfo, connecting the issue of dyspraxia and suicide action [30]. But, considering these difficulties in dyspraxia as a temporary issue, on the one hand, and understanding the action organization in broader terms than a specific short-term motor action as is often the case in the diagnosis of dyspraxia, on the other, one can obtain a path to a better understanding of suicide action. Temporal occurrence of dyspraxia symptoms is a difficult assumption as dyspraxia is considered as based on permanently changed or under-developed neurological structures. Nevertheless, these symptoms could be produced by temporal experiences, perhaps when preexisting conditions are present. However, we did not find any reports or studies on PTSD and dyspraxia in PsycInfo (March 2019). There are only a few case reports on co-occurrence of trauma experience and dyspraxia [31]. It is of interest that there are some studies on dyspraxia and attention deficits [32], as we argue that suicide as a disordered action suffers under self-monitoring problems of which attention, next to emotion and pain, is a part.

Thus, we would like to propose to conceptualize suicide action as a temporal dyspraxia of life related actions and projects. It has been suggested that observing a child play and perform various everyday tasks will make a diagnosis of dyspraxia possible. Nevertheless, there is no true benchmark of criteria and assessment tools for establishing the diagnosis. It has been suggested that even the established tests for apraxia do not provide consistent results [33]. If the task is life-maintaining problem solving and the dyspraxia is considered as time limited difficulties, one could apply this schema to suicide action. It is not only because an important higher goal (life maintenance) is omitted, but also because other processes of orderly actions or orderly projects are disordered. We described a number of them, specifying particularly the self-monitoring processes, but others outlined a number of cognitive bias [34] and dissociation processes in suicide [35,36].

The prognosis of the treatment of suicide action, as a time limited health and action problem, should be more optimistic than the

prognosis of treatment of traditionally defined dyspraxia. It is of interest that acquired apraxia/dyspraxia is usually due to disease affecting the left inferior parietal lobe, the frontal lobes or the corpus callosum. It has been reported that patients who attempted suicide, compared to non-attempter patients, had higher rCBF (regional cerebral blood flow) at rest in the right insular cortex, dorsal ACC gyrus and inferior parietal lobule. Patients who attempted suicide, compared to non-attempter patients, had perfusion deficits in the left frontal lobe, the right thalamus and part of the right medial temporal lobe during concentration. Areas of high rCBF were noticed in the right ACC and the left cerebellar pyramid. Patients who attempted suicide have generally lower rCBF at rest than healthy subjects [37]. Smaller anterior corpus callosum predicts higher impulsivity in suicidal patients [38]. To date treatment for these complex but debilitating conditions of dyspraxia has received little attention [39]. Responding to the problems of treating suicidal persons as mental health patients by addressing their mental illness, we suggested that suicidality should be understood as a human goal-directed action and the treatment should be developed accordingly. The intentionality in suicide is, despite understanding suicide as a mental illness, generally recognized. Suicide intention as a key concept in suicide and in a no-suicide contract [40-42] is widely used in research, diagnosis and treatment of suicidal people.

We argued that suicide should not be seen as an illness, but as an action not because suicide is a health irrelevant behavior, but because in dealing with an illness we often discount the intentionality of a person. And understanding the suicide of a person and treating a suicidal person we need to take account of person's intentionality and activate the intentionality, the goal-directedness of a person. Consequently, we not only addressed suicide as an action in the encounter with suicidal persons, but we also conceptualized it as such. Action being understood as a unit of an internal, manifest and socially meaningful process segmented out from the stream of behavior. Studying suicide actions, we pointed out a number of action processes not being conceived of, planned and executed properly and thus we called a suicide attempt a distorted action [14]. Talking about action distortions and problems and not just cognitive fallacies, decision faults or emotional errors we included manifest and motor processes thus merging with the research and conceptualization of motor goal-directed behavior [43,44]. Motor actions were often narrowly seen as short-term manipulation of objects. However, the conceptualization of motor and goal-directed action, as well as of cognitive processes, including embodied cognition [45], changed substantially [46]. Goal-directed processes are currently seen as a basic architecture of complex, short-term, midterm and long-term processes, including subjective, motor-manifest and social parts of action. And, as outlined above, the distortions of goal-directed action were traditionally conceptualized as apraxia and dyspraxia.

Apraxia is a disturbance in goal-directed behavior defined as a cognitive-motor disorder specific to learned skilled movements. The person is unable to perform tasks. Should we replace movement by action, that is what is intended – performing skills is more than executing movements, it is performing actions. Two classes of

errors are described: sequence error and conceptual errors. Considering the action theoretical conceptualization developed some years after the original diagnosis of apraxia was outlined, the understanding of the action errors has to be adapted to this new conceptualization. Already, Miller, Galanter and Pribram [47] suggested a hierarchy of processes of which actions consist. Thus, apraxia has to be formulated not only for movements related to objects, such as a toothbrush, but also to overreaching, higher goals. Obviously, suicide as an action, for which we propose to use this understanding, represents, despite the tragic and fatal consequences, a lighter form of action disorder, such as described in dyspraxia. In discussing this frame of suicide conceptualization, we are not led by the desire to find a new diagnosis for suicide, but by the wish to point out some consequences of the contemporary understanding of action that implies a unity of cognitive, emotional, motor and relational processes alike. Equally, our intention is to point out a comprehensive treatment of suicidality addressing social, top-down, bottom up, sensorimotor, emotional, cognitive, attentional, subjective and manifest processes in a well-balanced approach. In simple words, the bottom line could be that our professional colleagues dealing with patients diagnosed with dyspraxia engage in doing, while many of us treating suicidal patients engaged in talking. Thus, the title of this article is formulated as a question, as it was not our intention to propose a new illness category for suicide, but to suggest a different frame in which suicide could be understood and suicidality could be treated. We believe that linking the suicide processes to action processes, as outlined in the theory of contextual goal-directed action and to the treatment of suicide by ASSIP (Attempted Suicide Short Intervention Program) [48], we provide a first step for this argument. Even more so, as this approach proved to be by 80% more successful than "treatment as usual" in a 2 year follow up [49].

Relating suicide to problems of dyspraxia requires addressing the specific errors identified in dyspraxia as occurring in suicide. One of them is the problem in planning an action. "*The underlying problem in dyspraxia is the ability to organize a purposeful plan of action.*" (p. 358) [50]. DeGangi identified three stages that could become disturbed: 1: Ideation, 2: Planning the Action, 3: Executing the Plan. "*Stage 1: Ideation. In this first stage of motor planning, the person conceptually organizes the skill or task. The person links the feeling of enacting the motion or action with the concept of which actions lead to task completion.*" (p. 358) [50]. Applying this conceptualization of suicide, we certainly recognize the stage "ideation" of suicide. However, as we pointed out, suicide action is integrated in a suicide project. This is a mid-term organization of a number of certain actions. Although a suicide person might maintain that the "suicide action came upon her out of nowhere" a good narrative interview and a self-confrontation interview (a video-supported recall) would reveal that there was a period in which this suicide action developed. Thus, sometimes a suicide action is well planned in advance, whereas other people might recall a very brief period of time preceding the crucial suicide action step. Nevertheless, the cases where the suicide act was consumed in a single suicide step without any prior steps related to suicide are extremely rare. The suicidal person would have to report that everything went as nor-

mal, there were no unusual thoughts about death and dying and the person suddenly jumped or turned the gun during a shooting practice to herself, or seeing sleeping pills, took them all at once. Consequently, the stage of ideation of suicide is a very common notion in suicide reports and narratives. However, we have to keep in mind that a suicidal action is an alternative option in a different project. This could be a project of maintaining self-worth, maintaining an important relationship, gaining emotional balance or fighting emotional pain. Some suicidal people suggest that "suicide is not a problem, but the solution". Suicide prevention attempts often plead that suicide is not a solution and that any problem could be dealt with in many other ways. Both of the statements use the schema of "problem" and "solution". Thus, suicide is only exceptionally an act per se, in its own right. The ideation of a suicide as an alternative option in a project could be formulated ("if this could not be materialized then I do not want to live"), or could be implied in the lack of other options, such as, "this relationship is existentially important to me".

Already considering this action as an alternative to other actions indicates a problem in keeping the necessary goal hierarchy in mind. Repairing a bicycle in the living room and ruining the parquette floor or opening a beer bottle with one's teeth, might be other examples of blanking out the consequences in a more trivial realm. However, suicide action, although it could be seen as an alternative action in a project, is an action with its own goal. Many suicidal people are aware of the fatal consequences of their suicide action. It seldom occurs as a byproduct of their deed. A suicide intention is actually a defining concept of a suicide. That is why drug addicts rejected the notion of suicide in the "death by overdosing" in the times when drug addiction was not well understood.

Following the contextual action theory [51,16] we distinguish between ideation of suicide during other actions, be it within a suicide project or during other projects, and ideation of suicide within the suicide action. A patient male in his fifties, reported that he had such a headache while driving to work, a headache that was persistent for a couple of months and even years, that he stopped the car, took his gun and went to the nearby forest to kill himself. A female patient in her forties, suffering from an eating disorder, kept promising her husband that she would seek treatment. Realizing that she cannot go on like this anymore, she decided well in advance to overdose while her husband was away. While the first suicide ideation occurred within the suicide action, the second example is about suicide ideation within a suicide project. The ideation itself occurred while the patient was doing her household chores.

DeGangi [50] further discusses stage 2, "planning the action" and stage 3, "executing the plan". However, this structuring of the action flow is only superficially related to action theoretical thinking, as it is more an everyday consideration of a task [ideate, plan, execute]. We know that thinking about action and actually being involved in an action are different. First of all, action is not exclusively defined by the object of consideration (whenever I think about a future holiday it would be an action of taking a holiday), but by subjective processes (I want to do what I am doing just now, having a particular goal), by observable processes (an observer would in-

dicating that this action unit could be segmented out of the stream of behavior) and by social meaning (members of the same social and communicative community as the actor or agent could attribute the same meaning to the particular action unit). These three criteria do not have to be exactly overlapping and there are exceptions in which one or the other criterion does not apply (e.g., action in hypnosis), but none of them should be a priori excluded. We also have to consider, that an action usually lasts a couple of minutes, a project days and weeks and a career several years. Consequently, planning is considered part of action and not a process exclusively attempted prior to an action. The theory of goal-directed action [52] stipulates that the second level of action organization contains cognitive steering and control. It is accomplished by plans and strategies and is directed at both the course of action and its goal. Cognitive steering involves a plan -- an outline of an action at the strategic level, the cognitive preconception of steps of action and intersections. In this plan, sub-goals are subordinated to goals. The cognitive steering of an action also can involve a network of plans, strategies, and decisions. The network of plans is the perceived network containing various plans related to the same goal. Strategy refers to a preferred order of plans. Decision refers to a conscious choice between alternative steps of action. It is not enough to know the plan or decide among alternatives, the execution of the plan within an action requires resolve.

Thus, plans are not situated at the top level of the action organization where the goals are conceptualized. Consequently, the suicide goal is not considered at the level of action plan. Further on, dyspraxia does not concern only the "how" of a specific action, but also the "what". While dyspraxia in children is often discussed as motor difficulties, dyspraxia in adults covers many other areas of life. Adults with dyspraxia may also have social and emotional difficulties, as well as problems with time management, planning and personal organization. Thus, these difficulties reach beyond a short-term physical object related motor action. This is a realm of projects and action relationship, as well as the organization of these short and mid-term goal-directed processes in a long-term goal-directed process of a career. It is not only a question of how to deal with a toothbrush, but also of how to manage personal organization of various projects, such as in professional life, in private life, e.g., holiday, acquiring and purchasing a house etc. The fact that dyspraxia affects short term motor organization of action in children, as does the development of bimanual skills [53] and mid-term and long-term project organization in adults might be related to the process by which we organize our life management, thus generalizing and extrapolating short-term, object related action we learned in childhood. This may also be the case in the evolutionary perspective - a necessary step required for the lifestyle change from hunting and gathering to farming.

Sometimes some sequence errors as occurring in dyspraxia are discussed, such as: action addition (action is added though not required for the goal attainment), action anticipation (the action sequence is not correct, thus putting the goal-attainment at risk), action omission (action is omitted and its missing is not corrected

immediately), perseveration (action is repeated, although this is not required for the goal-attainment). These sequence errors could be identified in suicide either related to the suicide action itself or to the alternative action that could have been performed instead of the suicide action. Being concerned with a failing relationship and adding a suicide action to the problem-solving strategy is considered functional probably by the suicidal person only. Wanting to die in a suicide, because life would become unbearable in the new circumstances changes the sequential order of the events. The death should follow the period of unbearable suffering and not precede it. Attempting a suicide while omitting a series of problem-solving actions could be identified as an "action omission" error. Becoming suicidal after perseverating or repeatedly recalling a painful event or repeatedly returning to a painful situation could serve as an example of the perseveration error.

There also are some conceptual errors defined in dyspraxia. Misuse error implies either using the wrong means (a saw for hammering or suicide for coping with mental pain), or using a means in an improper way (spreading an orange with a knife as if it were butter; taking an overdose as if it would just induce deeper sleep). Mislocation could be identified in the case of a patient, who cut his hand with an axe in suicidal intention, thus using the ax properly but on the wrong object. Tool omission could be identified in cases where a simple telephone call would solve the key issue of the life crisis, but instead a cut with a knife or a leap from a cliff were performed. Many other errors hindering the suicidal person to take up a life-saving alternative could be identified. A person could hesitate to call a physician (only a minority of suicidal persons mention that a physician could help) or plays with the idea of getting help but not doing anything about it. We identified many other action errors that were closely connected to our conceptualization of action. The main purpose of formulating these errors in the frame of goal-directed actions that were identified as problems of motor action is that intervention methods could be used that are less instructional but based more on practicing actions. We have learned that a narrative interview on suicide enables the suicidal person to organize the suicidal experience in the form of suicide action and project required for further suicide preventive intervention [49]. A self-confrontation interview - a video supported recall of the suicide narratives - enables the clients to recall their inner processes, only seldom explicated in the narrative interview. In addition, the visual experience of the suicidal persons seeing themselves telling their stories has several consequences. One of the impacts could be compared to the experience of the sensory-motor therapist [54]. The suicidal persons "read" and change their way of dealing with existential problems. Safety planning is another feature successfully used. Particularly, when connected with the video recording of the narrative as implementation intention, it is comparable to the training procedure of a dyspraxia treatment. Strategy training of patients with apraxia was associated with larger gains in improvement on tasks [55]. All these interventions being performed in an established joint project of life maintenance provide another link to the understanding of suicide in action terms as assumed in the conceptualization of dyspraxia.

## Conclusion

Cognitive psychology introducing the concept of embodied cognition weakened the division between cognition and motor processes. Neuropsychology research indicated that motor cortex impacts cognitive processes. Physical therapists taught us that successful rehabilitation after stroke must also mobilize cognitive processes, in order to make the motor action improvement sustainable. All this research provides a better understanding of the goal-directed behavior and the contextual action theory that includes subjective, manifest and social processes in the conception of action. As suicide requires an intention and is a circumscribed action it seems to be plausible to see suicide as an action and study suicide processes in action terms. The reports of suicidal persons about their suicide attempts indicate a number of distortions in these processes. These are action distortions. Not necessarily distortions of a motor action related to an object, but actions of a higher order. Apraxia and dyspraxia identify a number of various action distortions and errors. We asked whether the knowledge of these errors could help us in dealing with the distortions of suicide action. Unfortunately, the reports of successful treatment of and intervention in dyspraxia are rare and, thus, suicide researchers cannot copy and adapt existing procedures. However, the general understanding of the involved processes and the requirements for training and practice in dyspraxia might help enrich suicide prevention intervention in psychotherapy with suicidal people. Some of the successful interventions after a suicide attempt could be interpreted in these terms.

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## Conflict of Interest

No conflict of interest.

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