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The Development of Psychosomatic Reasoning in General Practitioners: An Empirical Study

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Empirical Study

Abstract

Background: Monajemi, Goli, and Scheidt (2014) proposed a theory of development of psychosomatic (PSM) reasoning. They hypothesized that the integration of psychosocial knowledge with biomedical (BM) knowledge may have started at the level of GPs. An experimental study was conducted to explore and compare junior and senior practitioners regarding their shift from BM to PSM in terms of their decision-making.

Methods: Two cases were presented to GPs in a sequential manner based on the reports of different settings (inpatient vs. outpatient). Each participant read each part of the case carefully in order to provide the management plan (Mx), determine which parts of the scenario were the most important, and write down, first, an explanatory model, and then, the management plan for the patient. The accuracy of item selection, explanatory models, and management plans were analysed.

Results: GPs have already acquired some PSM knowledge, and thus, they will be able to differentiate between the two focuses (i.e., BM and PSM), but are not yet proficient enough to deal with a case in a PSM focus efficiently. This results in ineffective judgment. In other words, GPs discern the importance that should be given to psychosocial factors when examining their patients; however, they do not take into consideration such factors in the management plan.

Conclusion: The results were largely in line with our assumptions based on the theory of the development of PSM reasoning; however, there is a definite need for more experimental studies here to support this argument.

Keywords: Psychosomatic reasoning, General practitioner, Hypothesis

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Introduction

Although the biopsychosocial (BPS) model is generally accepted, the focus of medical education and patient care is still on the biomedical (BM) model. Monajemi Goli, and Scheidt, (2014) proposed a theory of development of psychosomatic (PSM) reasoning. During their training, students acquire knowledge largely from textbooks and lectures with limited real patient encounter. There is a strong emphasis on the BM approach, which is often not accompanied by the same emphasis on developing a PSM approach. Medical students confronted with a clinical task will most likely act with a BM focus. This is the only mode of processing of a case they have some experience with when they graduate

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from medical school and start practicing as GPs. PSM becomes more concrete for GPs when they gain some clinical experience in an outpatient setting. The primary care practice that is largely based on the ambulatory setting serves as a good basis for PSM or BPS. It can be concluded that the integration of psycho-social knowledge with BM knowledge may have started at the level of GPs which is corroborated by the fact that GPs emphasize more on psychosocial issues and allocate more time to such subjects.

Because of the important role PSM plays in primary care settings, an experimental study was conducted to explore and compare junior and senior practitioners regarding their shift from BM to PSM in terms of their decision-making and processes of care when they encounter the same patient in their clinical work.

Methods

Participants: The study participants consisted of 30 GPs with an MD degree. They were divided into 2 groups based on their years of work experience; 15 GPs were placed in the less than 10 years' experience group (junior) and 15 GPs were in the group with more than 10 years' experience (senior).

Material: The materials consisted of a booklet containing an instruction about the procedure, 2 written descriptions of clinical cases, and 2 blank response sheets following the text of each case for writing the clinical management plan. The order in which the cases were presented to all participants was the same.

Procedure: In this study, 2 cases were presented to GPs in a sequential manner based on the reports of different settings (inpatient vs. outpatient). Each participant read each part of the case carefully in order to provide the management plan (Mx) for the patient (whatever each participant thinks is necessary for the patient and not only the treatment). After each section, the data within the case was presented again and participates were asked to determine which parts of the scenario were the most important by simply putting a checkmark in front of each item. After completing the first and the last part, they were asked to write down, first, an explanatory model, and then, the management plan for the patient. There was no time limitation for these tasks.

Analysis: The accuracy of item selection, explanatory models, and management plans were independently assessed by 2 PSM experts on a 2-point scale ranging from 0 (completely inaccurate) to 1 (completely accurate). The kappa value was 0.8 which shows a good agreement between the two experts.

Disagreements between experts were resolved through discussion. To analyze Mx plans, the protocols were segmented into propositions by adapting a technique used by Patel and Groen (1986). Propositional analysis involves segmenting a protocol into individual propositions each which corresponds to discrete units of the idea in the test. Based on clinical case studies which were conducted previously, the scores were used by using 3 measures. The measures were based on the classifications of propositions into biological, psychological, familial, and social propositions.

As the classification principle is based on the object of a proposition, often propositions from adjacent protocol fragments must be taken into account. The items were classified by 2 raters, and an inter-rater agreement of 0.95 was obtained. When raters disagreed, inconsistencies were resolved through discussion. All data were analyzed using analysis of variance (ANOVA) and effects were considered significant if $P < 0.05$.

Results

Item selection: Among the 88 items of cases, a significant difference was observed between the two groups in only 17 items. Table 1 depicts the mean and standard deviations in the two groups. The junior group was superior only in 1 item (I11), while in the other 16 items, the senior group performed better.

Table 1. The mean and standard deviations of item selection in the two groups

Number	Item	Senior	Junior
I3	The pain started two hours ago.	0.70	0.26
I11	After he was moved to the CCU, where he repeatedly asked the health personnel not to do anything because there was no problem.	0.11	0.41
I15	The patient visited a cardiologist two weeks after being discharged from the hospital.	0.71	0.21
I29	The cardiologist suggested that he also get an angiography in order to evaluate the function of his coronary arteries.	0.90	0.46
I30	He used to play sports when he was young.	0.55	0.20
I33	Negative history of cigarette or alcohol use	0.88	0.46
I39	He thinks that his stressful family and job are the main causes of his problems.	0.88	0.53
I43	Since his hospitalization, his family has supported him more.	0.88	0.53
I44	He is content with this support.	1.00	0.6
I46	Refer him to a clinical psychologist.	1.00	0.70
I61	Whenever he goes back home, his wife starts complaining about unimportant issues.	0.88	0.40
I65	He cannot stand to imagine the limitations and handicaps of his illness.	0.88	0.53
I68	He is concerned with losing his job.	1.00	0.33
I72	He has experienced panic attacks in some periods of his lifetime.	1.00	0.73
I74	He has a pessimistic attitude towards human communication.	1.00	0.66
I83	During the recent 2 years, his sexual potency has gradually weakened.	1.00	0.44
I87	After 3 sessions, he gained more insight about his psychosocial conflicts as well as their impact on his health and quality of life.	0.88	0.46

Among the above 17 items, 4, 10, 3, and 1, respectively, belong to the BM, psychological, familial, and social categories. It seems that the senior GPs had superiority over junior GPs because of the psychological components of the cases. The only item that had more weight among junior GPs was item 11 that is counter-intuitive; however, the percentage of both groups was lower than 50% that shows this item had low impact on their reasoning.

Accuracy of item selection: Among the 17 items that showed a significant difference between the senior and junior groups, only 6 items were the same with the key. Table 2 depicts the accuracy of item selection in the two groups.

Table 2. The accuracy of item selection (in percentage)

Accuracy of item selection	Junior	Senior
Inpatient	7.66 (2.6)	8.1 (1.1)
Outpatient	12.12 (6.1)	15.22 (4.5)

No significant difference was observed in accuracy of item selection between senior and junior doctors.

No significant difference was indicated in the inpatient setting. However, a borderline difference was shown in the outpatient setting (P = 0.1).

Explanatory sensitivity: Table 3 depicts the accuracy of explanatory models in the two groups.

Table 3. The accuracy of explanatory models (in percentage)

Accuracy of explanatory models	Junior	Senior
Inpatient	0.55 (0.31)	0.57 (0.20)
Outpatient	0.59 (0.27)	0.72 (0.14)

The analysis showed no significant difference in the 1st part, but a borderline difference in the 4th part (P = 0.1).

Mx Sensitivity: Table 4 depicts the Mx sensitivity in the two groups.

Table 4. The sensitivity of the management plan (in percentage)

	Junior	Senior
Inpatient	25.0000 (25.94373)	55.5556 (39.08680)
Outpatient	32.1429 (37.24732)	40.0000 (40.62019)

The analysis showed that the difference between sensitivity in the inpatient setting was significant, while in the outpatient setting, there was no significant difference. It was reasonable as the last part took place in a psychologist's office so the context sensitize the juniors.

Discussion

According to the theory of medical expertise (Monajemi, Goli, & Scheidt, 2014), it seems that the development of psychosomatic reasoning follows the process explained below. Experts in PSM construct their clinical case representations similarly. On the other hand, as GPs have already acquired some PSM knowledge, they will be able to differentiate between the two focuses (i.e., BM vs. PSM), but are not yet proficient enough to deal with a case in a PSM focus efficiently, leading to ineffective judgment. Hence, at the level of GPs, there is sensitivity towards psychosocial issues that they do not reflect in their judgment and decision-making. In other words, GPs discern the importance that should be given to psychosocial factors when examining their patients; however, they do not take into consideration such factors in the management plan.

The results were largely in line with our assumptions, in that an inaccurate and very general idea about managing psychological problems was the main characteristic of GP Mx plans. In addition, they managed some psychological problems, but they did not know when to refer for psychological problem. Their protocols were inaccurate and almost exclusively focused on management without any need to provide a plausible explanatory model. This fact is corroborated by the absence of any link between explanatory models and Mx plans. Although inaccuracy of Mx plans produced by the junior GPs can obviously be linked to their insufficient experience in outpatient settings as well as lack of PSM knowledge. It is important to note that incomplete or absence of linkage between BM and PSM knowledge can affect the overall accuracy of Mx plans in senior GPs.

The comparison of senior and junior doctors showed other aspects of the development of PSM reasoning. In terms of items accuracy and explanatory model sensitivity, senior GPs were significantly more accurate than junior GPs, which showed that the integration of PSM knowledge starts at the level of senior GPs. On the other hand, junior GPs could not simultaneously consider both somatic and psychological problems. However, there was also a non-significant difference in Mx accuracy between senior and junior doctors in the outpatient setting. This non-significant difference in accuracy between them supported the idea that the higher sensitivity of senior GPs in both item selection and building an explanatory model does not result in a more accurate Mx plans. There would still be no difference between senior and junior doctors in terms of the Mx plan, which highlights the fact that long experience in outpatient settings without systematic training in PSM does not guarantee a highly accurate practice. This transitory nature of intermediates is one of the developmental characteristics of PSM knowledge that should be explored in future studies.

The developmental pattern of Mx knowledge acquisition was reflected in 2 findings. First, we found that providing accurate Mx plans was a characteristic of expert doctors. The low accuracy of the two groups of GPs has different origins. In the junior doctors, this low accuracy stems from their inability to take both BM and PSM into consideration when providing Mx plans. However, in senior doctors, it is more due to their inconsistencies in keeping a line of reasoning.

The second finding that corroborates the developmental nature of PSM reasoning was that there was no difference between senior GPs and junior GPs in terms of their accuracy. The observed difference was in the format and size of their protocols, which again shows the transitory nature of GPs' knowledge.

Among all participants, only 6 of them (20%) were in pure PSM pattern that means that they recommended cardiac treatment, psychotherapy, and lifestyle modifications. Of the participants, 13 (50%) only recommended psychiatric therapy. It is very interesting to note that this group focused only on patients'

cardiac problems in the first scene. Therefore, in this group, a switch from BM to PSM thinking was observed. Moreover, 30% of participants suggested both psychotherapy and lifestyle modification.

Shackelton-Piccolo, McKinlay, Marceau, Goroll, and Link (2011) suggest that internists and family practitioners may develop different "disease" perspectives. This is probably due to the fact that, during their medical training, they may use different explanatory models, that is, respectively, pathophysiological and biopsychosocial. Their article aimed at exploring the differences between internists and family practitioners in their suggested diagnoses, level of diagnostic certainty, test, and prescription ordering when they encounter the same "patient" who suffered from coronary heart disease (CHD). Their findings indicated that internists were more certain of a CHD diagnosis, while family practitioners tended more to act on this diagnosis. The latter group tended more to diagnose (and were more certain of) a mental health condition.

Although psychiatric problem ignorance is dangerous, overlooking cardiac problems in light of psychiatric problems is also very hazardous. The integration of these two types of knowledge has not yet occurred. It could be concluded that when the integration of these two types of knowledge is not complete, PSM education may lead to more error-prone practice as the practitioner places more emphasis on psychological knowledge but fails to notice the somatic knowledge.

Especially for GPs or intermediates in PSM, there is a possible distinction between a BM and PS (psycho-social) condition when processing clinical case information; their more recently acquired PS knowledge is not yet fully developed and integrated with their BM knowledge. In most medical schools, PS knowledge does not seem to play an important role during the medical school years, and the integration of BM and PS knowledge, therefore, mainly starts during the primary care practice. As a result, the development of PS knowledge will lag behind the GPs' BM competence and will only become fully integrated with BM knowledge after many years of clinical experience.

What are the implications of this paper for research, and medical education and practice? First, there is a definite need for more experimental studies here to support this argument. Second, concerning medical education, it seems that the translation of such experimental studies and their application in medical education is not so trivial, but opens a new avenue both in training undergraduates and postgraduates. In addition, a more general discourse on the relevance of this theme is necessary for an improvement of medical treatment, something that future research may shed further light on.

Conflict of Interests

Authors have no conflict of interests.

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